Chapter 3. Main producing and exporting countries

Building on the global patterns presented in previous chapters, this chapter assesses the situation of crops in 30 key countries that represent the global major producers and exporters or otherwise are of global or CropWatch relevance. In addition, the overview section (3.1) pays attention to other countries worldwide, to provide some spatial and thematic detail to the overall features described in section 1.1. In section 3.2, the CropWatch monitored countries are presented, and for each country maps are included illustrating NDVI-based crop condition development graphs, maximum VCI, and spatial NDVI patterns with associated NDVI profiles. Additional detail on the agroclimatic and BIOMSS indicators, in particular for some of the larger countries, is included in Annex A, tables A.2-A.11. Annex B includes 2015 production estimates for Argentina, Brazil, Canada, and the United States.

3.1 Overview

Figures 3.1-3.4 illustrate the global distribution of CropWatch indicators for rainfall, temperature, radiation, and biomass—respectively the RAIN, TEMP, RADPAR, and BIOMSS indicators, showing their increase or decrease for this monitoring period compared to last year's April-July period. Details by country are presented in table 3.1.

Figure 3.1. Global map of rainfall (RAIN) by country and sub-national areas, departure from 14YA (percentage), April-July 2015

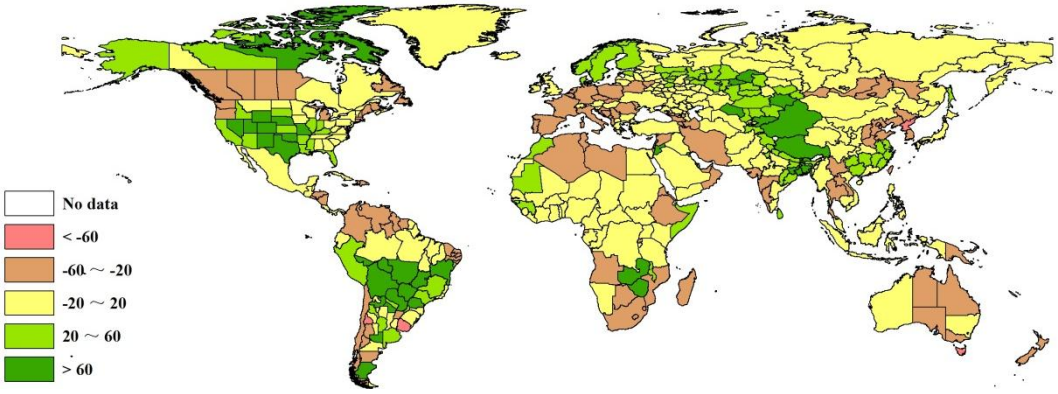


Figure 3.2. Global map of temperature (TEMP) by country and sub-national areas, departure from 14YA (degrees), April-July 2015

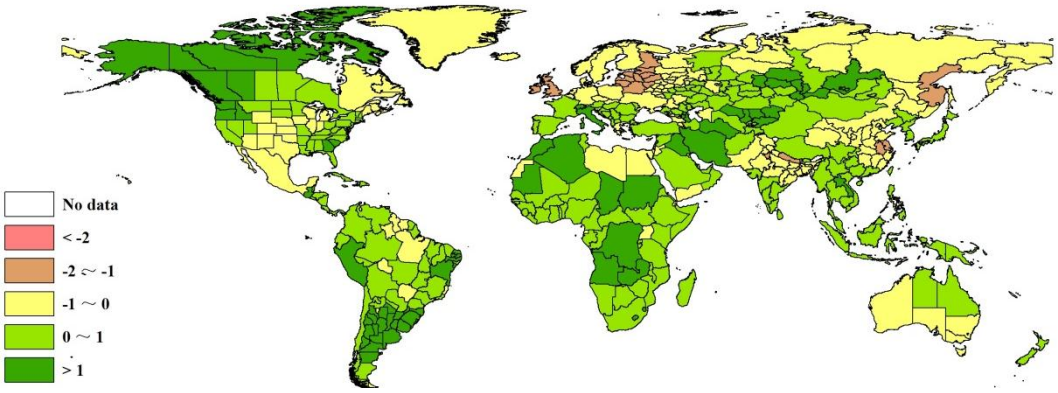


Figure 3.3. Global map of PAR (RADPAR) by country and sub-national areas, departure from 14YA (percentage), April-July 2015

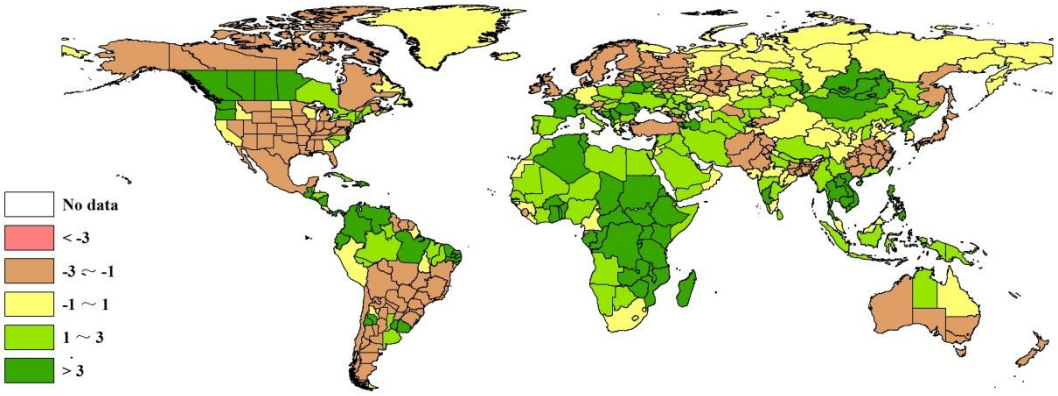
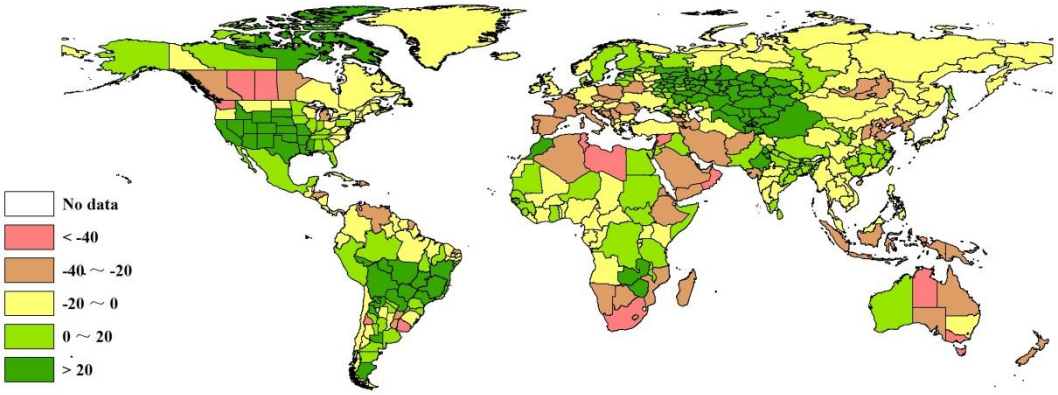


Figure 3.4. Global map of biomass (BIOMSS) by country and sub-national areas, departure from 14YA (percentage), April-July 2015



Among the 31 countries monitored by CropWatch (see the detailed analyses in section 3.2), several countries experienced nationwide favorable or unfavorable conditions, starting with a group of western European countries (France, Poland, Romania, Germany, and Ukraine; figure 3.1) where spring and early summer rainfall (RAIN) was about 26% below average (-38% in France to -20% in Ukraine) with slightly below average temperature (TEMP, -0.1°C), average sunshine as indicated by RADPAR, and a biomass production potential (BIOMSS) decrease of 24% compared to average. In Romania, cropped arable land fraction (CALF) fell 3 percentage point compared with the recent five-year average while the maximum Vegetation Condition Index (VCIx) was just fair (0.76), indicating that, among the listed countries, Romania is likely to be one of the most affected by the adverse conditions. In Ukraine, on the other hand, CALF increased 2%, and the fair crop condition (VCIx=0.86) points to a more limited impact.

Below average water supply affected two Asian countries: Iran (-41%) and Thailand (-24%), both with above average temperature (+1.4°C and +0.8°C, respectively) and above average sunshine (+2% and +8%), resulting in decreased production potentials of -13% (Thailand) and -33% (Iran). In Thailand, however, CALF was identical to the average of the last five seasons, accompanied by “good” VCIx (0.81), which is not compatible with a serious impact. In contrast, Cambodia, with a slight rainfall deficit (RAIN, -3%) and abundant sunshine (RADPAR, +5%), displays a low CALF value of 5 percentage points below average and a VCIx of 0.83; in this case non-weather factors may have played a part.

Table 3.1. CropWatch agroclimatic and agronomic indicators for April-July 2015, departure from 5YA and 14YA

Country	Agroclimatic indicators			Agronomic indicators		
	Departure from 14YA (2001-14)			Departure from 5YA (2010-14)		Current
	RAIN (%)	TEMP (°C)	RADPAR (%)	BIOMSS (%)	CALF (%)	Maximum VCI
Argentina	18	1.4	-1	-2	2	0.55
Australia	-22	-0.3	-3	-17	-1	0.82
Bangladesh	71	-0.5	-9	15	0	0.79
Brazil	22	0.5	-2	24	1	0.73
Cambodia	-3	0.8	5	-5	-4	0.83
Canada	-30	0.7	4	-23	-6	0.91
China	11	-0.2	-2	0	-2	0.90
Egypt	13	-0.7	2	13	0	0.89
Ethiopia	-25	0.6	4	-22	-2	0.88
France	-38	0.5	4	-36	0	0.74
Germany	-24	-0.2	1	-19	0	0.81
India	11	-0.2	0	0	-6	0.84
Indonesia	-19	0.3	3	-23	0	0.83
Iran	-41	1.4	2	-33	1	0.41
Kazakhstan	41	0.7	1	42	9	0.89
Mexico	-4	-0.1	-2	14	5	0.89
Myanmar	-12	0.5	1	-6	0	0.84
Nigeria	0	0.5	3	-10	-3	0.83
Pakistan	17	-0.8	-3	19	1	0.85
Philippines	-5	0.4	5	-15	0	0.85
Poland	-26	-0.7	1	-24	0	0.86
Romania	-25	0.2	3	-23	-3	0.76
Russia	8	0.1	0	14	1	0.91
S. Africa	-50	0.8	0	-42	-10	0.35
Thailand	-24	0.8	8	-13	0	0.81
Turkey	14	0.1	-1	-5	6	0.68
United Kingdom	0	-1.1	-2	-7	0	0.89
Ukraine	-20	-0.5	2	-15	2	0.86
United States	33	0.2	-4	19	2	0.88
Uzbekistan	12	0.9	2	28	3	0.76
Vietnam	-2	1.0	4	-10	0	0.89

Note: Departures are expressed in relative terms (percentage) for all variables, except for temperature, for which absolute departure in degrees Celsius is given. Zero means no change from the average value; Relative departures are calculated as (C-R)/R*100, with C=current value and R=reference value, which is the five-year (5YA) or fourteen-year average (14YA) for the same period (April-July).

Two African countries were also affected by poor water availability: Ethiopia and South Africa. The first recorded a water deficit of 25%, with above average sunshine (+4%) and a drop in BIOMSS of 22%. The impact on cultivated land fraction is slight (-2%) and condition is generally rather satisfactory (VCIx=0.88). In the second country, the precipitation deficit in the late months of the growing season was severe (reaching -50%) with a resulting biomass production potential deficit of 42% but nevertheless close to normal sunshine and temperature. South Africa is the only country among those monitored by CropWatch that shows both a marked drop in cultivated land fraction (-10%) and poor crop condition (VCIx=0.35), leaving little doubt that crops suffered seriously from the drought.

In Australia and Canada, the rainfall deficit reached 22% and 30%, respectively. In Australia this was combined with above average temperature (+0.7°C) and sunshine (+4%), while Canada experienced relatively cool weather and a correlated sunshine drop of 3%. CALF dropped by 6% in Canada, which is one of the largest drops among all CropWatch monitored countries, although VCIx seems to be rather favorable, indicating a decrease in cropped area but satisfactory condition in planted areas.

At the national scale, significant above-average precipitation is reported from the United States, where it affected mostly southern and central western states (RAIN, +33%) with about average temperature and low RADPAR, resulting in a BIOMSS increase estimate of 19%. CALF rose 2% of the average of the recent

five years, and VCIx was rather favorable (0.88), indicating at least fair conditions globally in spite of local floods and drought.

Kazakhstan also recorded excess rainfall (+41%) but otherwise average conditions, with a positive impact on BIOMSS (+42%). Considering that CALF markedly increased (+9%) and that VCIx shows good conditions (0.89), the condition of the country's crop and rangeland can be assessed as favorable. Finally, Bangladesh received large excesses of precipitation compared to average (+71%), which led to floods and also affected neighboring areas in India, Myanmar, and Nepal, as discussed in more detail in the respective country sections in this chapter and in section 5.2 on disaster events. Bangladesh suffered a very significant drop in RADPAR (-9%) but apparently no drop in cropland (as assessed by CALF and indicated by good VCIx)

When considering all countries worldwide (see also figures 3.1 to 3.4), additional detail emerges in terms of global patterns, as already indicated at a coarser spatial resolution in Chapter 1 as well as on a sub-national scale for the largest countries. Drought affected several countries in the Middle East and North Africa with negative RAIN departures in Oman (-53%), Cyprus (-68%), Lebanon (-63%), Israel (-53%) and Tunisia[2] (-60%). Drought also affected the Caribbean islands (Dominica -90%, Jamaica -54%, and Trinidad and Tobago -52%) as well as Uruguay (-61%), although the country is mostly surrounded by areas with average or above average rainfall, sometimes significantly so especially in southern Brazil and northern Argentina. Poor water supply also affected Lesotho[3] (-50%, similar to the deficit in South Africa), Eritrea (also -50%), and Comoro Island (-58%), an Indian Ocean nation that is part of the same climatic belt as Madagascar and southern Africa.

Finally, the Republic of Korea (RAIN, -51%) and the Democratic People's Republic of Korea (-63%) also experienced water deficits. The two countries are part of a cluster also involving adjacent areas in China, in particular parts of north-east and east China (Shanxi, Henan, Hebei, Tianjin, Shandong, Taiwan, Liaoning, and Jilin) where the deficit typically ranged from 44% to 26%, with the largest value recorded in Hebei (-55%). Unconnected spatially to the previous provinces, Yunnan also suffered a deficit of 36% in a rainfall deficit area that extended into Laos (RAIN -25%) and the already mentioned Thailand.

Areas where excess precipitation occurred include mostly coastal areas in south-east China (refer to section 5.1), with excess RAIN values in the range from 32% to 54% (Hunan, Guangxi, Anhui, Jiangxi, and Shanghai), as well as the western regions of Tibet (+78%) and in Xinjiang-Uygur. The latter experienced a spectacular in RAIN of +165% compared to average. The combination of favorable and unfavorable conditions in areas in China results in a slight drop in the fraction of cropped arable land (-2 percentage points) but altogether rather favorable crop condition as assessed by VCIx (0.9).

The areas of Tibet and Xinjiang-Uygur are part of a contiguous region of excess precipitation starting in north-east India with excesses between 27% in Assam and reaching 55% in Uttarakhand over Bihar, Meghalaya, Himachal Pradesh, Chhattisgarh, and Haryana. The largest rainfall excesses were recorded in Uttarakhand (+55%), Jharkhand (+60%), Sikkim (+64%), West Bengal (+75%), and Tripura (+93%). West India, on the other hand, suffered poor rainfall, especially Goa (-70%) and Gujarat (-51%), but also Maharashtra, Kerala, Puducherry, and Karnataka (-27%). Although biomass is average, based on a low value for CALF (-6%) and a fair VCIx (0.84), slightly below average condition is expected.

North of the Xinjiang-Uygur region, precipitation excesses have benefited the mostly pastoral economies in Kyrgyzstan (RAIN, +63%) and Kazakhstan (Oblasts of Vostok (+80%) and Kyzylorda (+118%)), with

[2] Neighboring Algeria and Libya also suffered; the three countries (Algeria, Libya and Tunisia) can be considered as part of the same set of countries experiencing a rainfall deficit as the European countries for which only the most severely affected were listed. Mediterranean Europe also recorded a rainfall deficit.

[3] In contrast, both Zimbabwe (RAIN, +94%) and Zambia (RAIN, +122%) enjoyed unusually good late cropping season conditions.

rainfall excesses extending into Russia (Kurgan +68% and Tyumen +68%) as well as most areas in between and extending west up to—but not including—Finland. Conditions were generally unfavorable in southeast Siberia, including the Amur (-22%) and Chita (-35%) Oblasts as well as the Buryatia (-35%) and Tyva (-26) Republics.

3.2 Country analysis

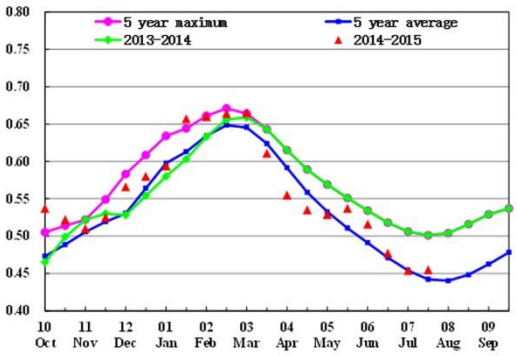
This section presents CropWatch results for each of thirty key countries (China is addressed in Chapter 4). The maps refer to crop growing areas only and include (a) Crop condition development graph based on NDVI average over crop areas, comparing the April-July 2015 period to the previous season and the five-year average (5YA) and maximum. (b) Maximum VCI (over arable land mask) for April 1 – July 31 2015 by pixel; (c) Spatial NDVI patterns up to July 2015 according to local cropping patterns and compared to the 5YA; and (d) NDVI profiles associated with the spatial pattern under (c). See also Annex A, tables A.2-A.10, and Annex B, tables B.1-B.4, for additional information about indicator values and production estimates by country. Country agricultural profiles are posted on www.cropwatch.com.cn.

Figures 3.5-3.34. Crop condition for individual countries ([ARG] Argentina- [ZAF] South Africa) for April-July 2015

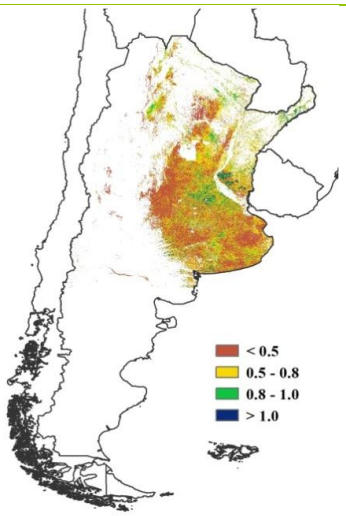
[ARG] Argentina

In general, crops in Argentina underwent below average conditions from April to July. Harvest of summer crops (mainly maize and soybean) was concluded by April. The planting of winter wheat was completed by late July and is currently in the tillering stage. At the national level, overall agroclimatic conditions were favorable as crops enjoyed sufficient rainfall (RAIN, +18% above average), warm temperature (TEMP, +1.4°C), and average radiation (RADPAR, -1%), which resulted in an average value for BIOMSS compared to the recent five years. As mentioned in the previous bulletin, high temperature and adequate rainfall advanced the maturity and harvest of maize and soybean; the NDVI peak is above the recent five-year average and that of last year. The rapid decrease of the NDVI value from March to late April indicates that the harvest of the summer crops progresses well. CropWatch puts the final production of maize and soybean at the same level as in the previous CropWatch forecast (see Annex B, table B.1). Since April, farming practices were dominated by the planting of winter wheat. Favorable agroclimatic conditions were observed in most of the major agricultural provinces with the exception of Santa Fe and Entre Rios where crops suffered 15% below average rainfall conditions. However, winter wheat condition is slightly below average in most regions according to the crop condition maps and graphs. The main reason is excess moisture during wintering, as a series of storms since August 1 has resulted in floods in major wheat producing regions, which may negatively impact wheat outputs.

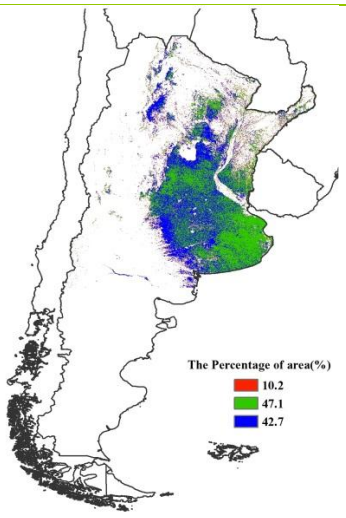
Figure 3.5. Argentina crop condition, April-July 2015



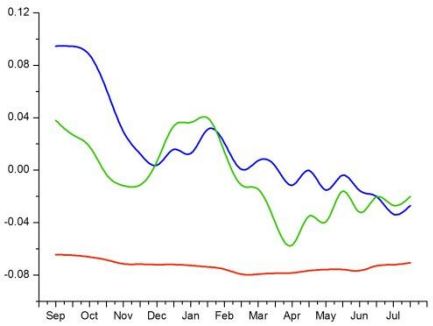
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



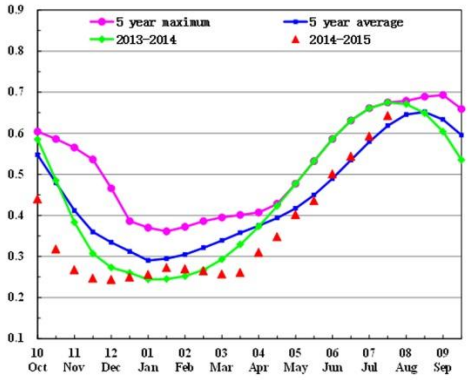
(d) NDVI profiles

[AUS] Australia

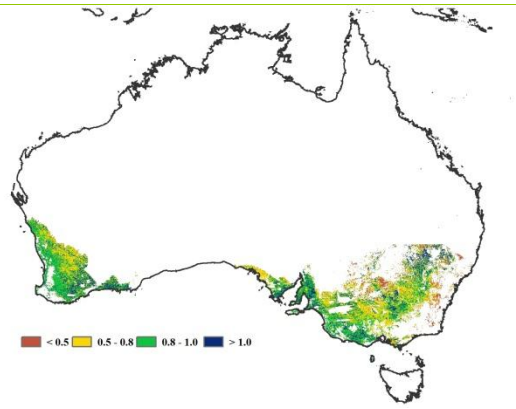
Compared to the five-year average, crop condition in Australia was generally average over the reporting period, as illustrated by the crop condition development graph. Crop condition, however, was below average in April. The total maximum VCI reached 0.82 with a stable value for the area of cropped arable land (CALF, -1%).

Although the precipitation in Australia shows a decrease of 22% compared to average (with TEMP at -0.3°C and RADPAR -3% compared to average), the planted winter wheat was in the dormant period so that the drop in precipitation will not so significantly impact its growth. However, parts of north and western Victoria show below-average NDVI values (clearly shown in the spatial NDVI patterns), which should be paid attention to; these areas account for about 41.6% of the cropped regions. Victoria also experienced a precipitation drop of 50%, possibly due to the influence of EI Niño (TEMP, -0.7°C and RADPAR, -4%), leading to a 43% drop in accumulated potential biomass (BIOMSS). Crop condition in southeastern New South Wales was below average from April to June, but improved to above average in July. Southwestern Western Australia, south-eastern South Australia, and southern Victoria all show generally average crops. In general, crop condition in Australia is favorable.

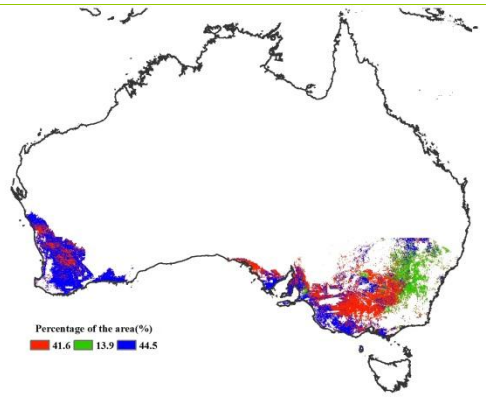
Figure 3.6. Australia crop condition, April-July 2015



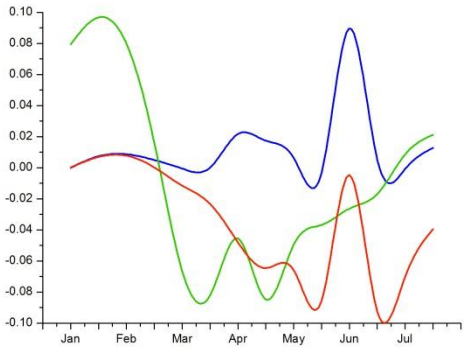
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

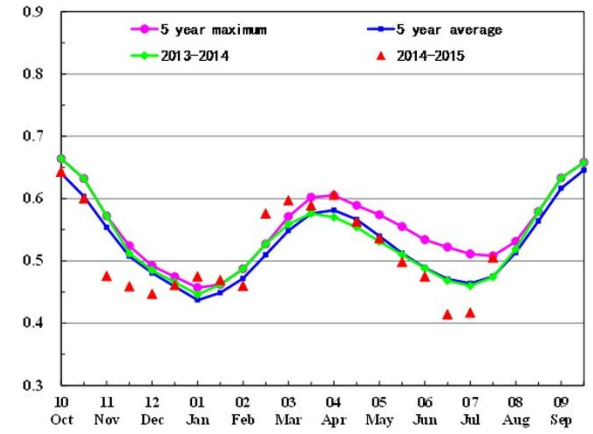


(d) NDVI profiles

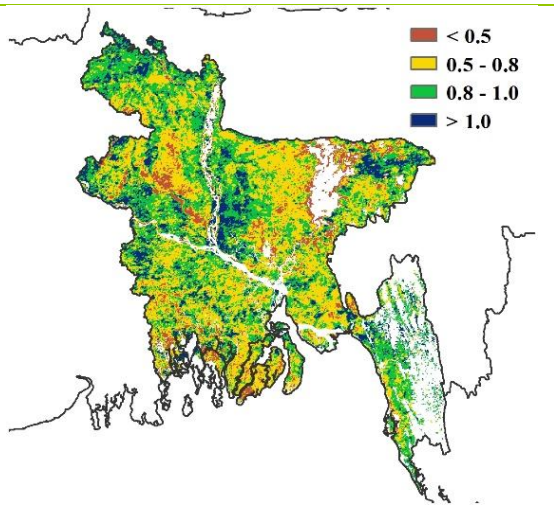
[BGD] Bangladesh

The reporting period corresponds to the growing of Aus rice and planting of Aman. Overall, the CropWatch indicators show poor crop condition at the end of the reporting period. Cyclone Komen and excess rainfall (RAIN, +71%) caused flooding in Chittagong, Rajshahi, Dhaka, Khulna, and Barisal and damaged rice crops. The overall biomass accumulation potential (BIOMSS) was 15% above average; temperature (TEMP) were average, while radiation was low (RADPAR, -9%), a very negative factor in a country where sunshine is a dominant limiting factor. Considering the previous five-year average, there were no changes in the fraction of cropped arable land. The national NDVI profile was below the average of the previous five years. In some regions of Sylhet, Dhaka, and Rajshahi. The maximum VCI recorded was below 0.5, indicating below average crop condition. However, maximum VCI values in other states ranged from 0.5 to 1, pointing to average crop condition. Spatial NDVI profiles for the whole country dropped during May to early June; however, profiles started to recover in the end of June except for the areas of Khulna, Barisal, Chittagong, and the region south of Dhaka, where profiles started to improve only in mid-July.

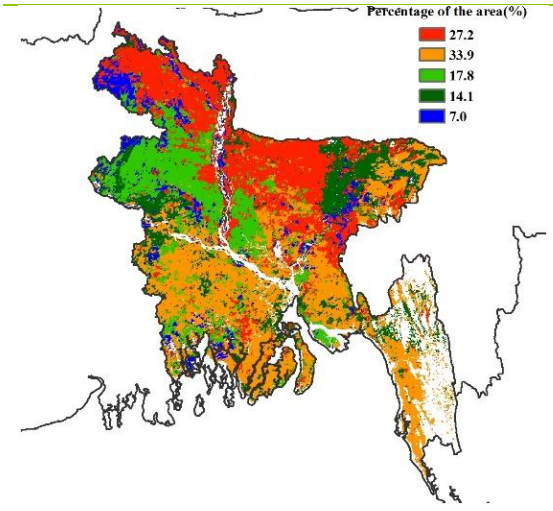
Figure 3.7. Bangladesh crop condition, April-July 2015



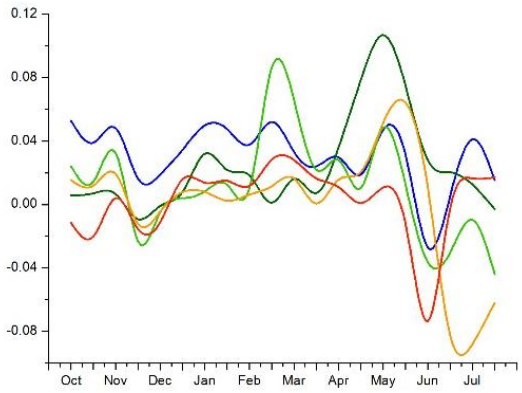
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

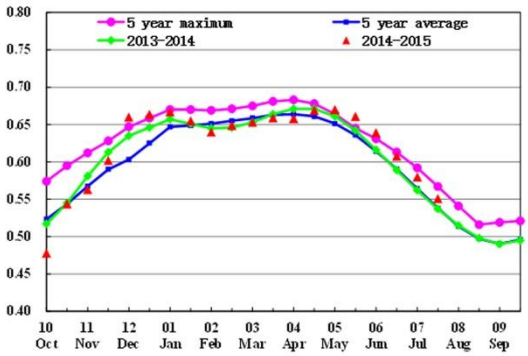


(d) NDVI profiles

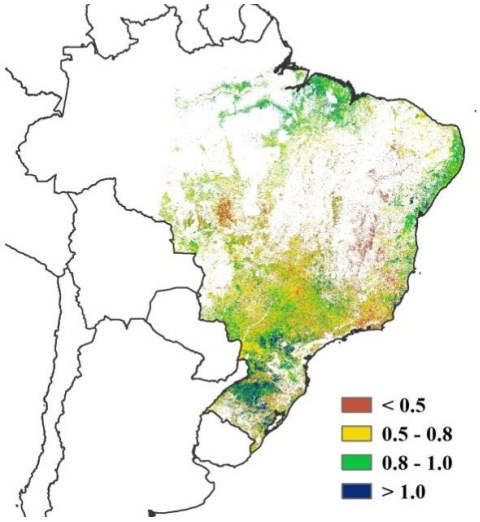
[BRA] Brazil

Overall crop condition was above average in Brazil during the reporting period. The harvest of the second maize is ongoing and wheat is currently in the heading stage. Agroclimatic conditions were beneficial for the development of wheat, which overall resulted in significant above average BIOMSS. Rainfall was 443 mm from April to July (or 22% above average), which replenished the soil moisture for crops. Air temperature and radiation were close to average. Rainfall was above average for most of the states in southern Brazil especially in Goias, Mato Grosso, Mato Grosso Do Sul, and Parana, with increases of respectively 138%, 107%, 74%, and 70% above average rainfall. Spatial patterns and NDVI departure profiles compared to the five-year average clearly indicate above average conditions in southern Brazil; this coincided with high VCIx values in Rio Grande Do Sul, Santa Catarina, Goias, Mato Grosso, Mato Grosso Do Sul, and Parana, among others. In central Brazil, crop condition was below the five-year average as shown in the VCIx map and NDVI departure clustering map, mainly due to the shortage of rainfall. Nationally, crop condition was above the five-year average and the previous year as shown in the NDVI based crop development profile, indicating an increased yield compared with the previous year. Cropped arable land fraction at national scale is estimated at 82%, 1 percentage point above average. Table B.2 in Annex B presents the estimated production outputs for the country in 2015.

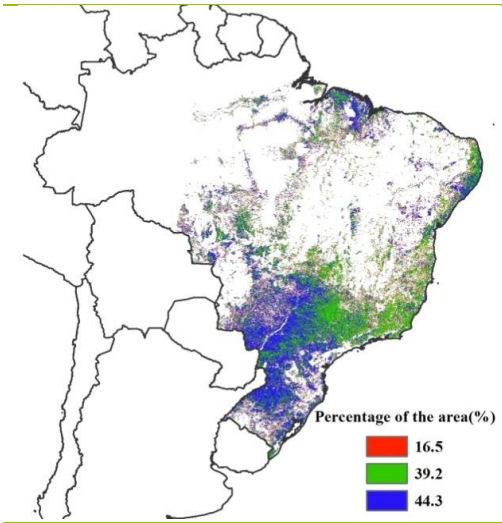
Figure 3.8. Brazil crop condition, April-July 2015



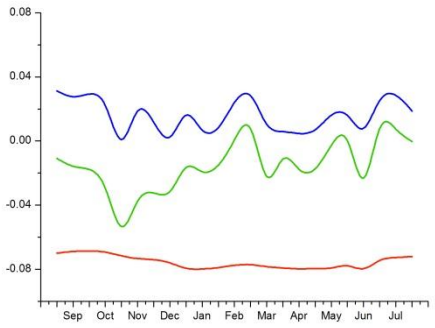
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

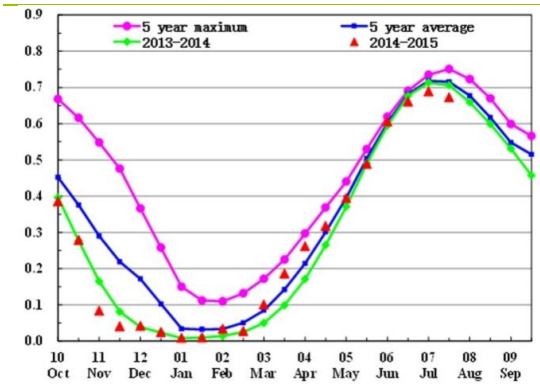
[CAN] Canada

In general, crop condition as assessed by NDVI is below average in the current monitoring period. This reporting period covered the seeding and flowering stages of summer crops, including barley, maize, oats, spring wheat, and soybeans. In terms of the CropWatch agroclimatic indicators, RAIN was 30% below average; TEMP was close to average (+0.7° C), and RADPAR was 4% above average.

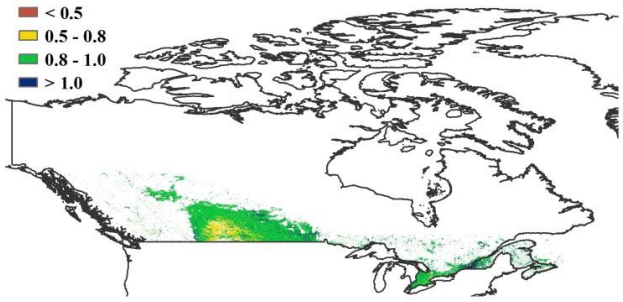
In the previous monitoring period (up to and including April), abundant rainfall (+38%) was available in Canada according to the CropWatch agroclimatic indicators. Unfortunately, over the recent period most regions were affected by drought. This in particular was the case in Alberta and Saskatchewan, where rainfall sharply decreased (-49%) and temperature increased by 1.3°C and 1.0°C, respectively. The dry and warm weather caused the biomass production potential (BIOMSS) in both provinces to drop 45% below the five-year average. According to media reports, Alberta was hit by the worst drought in 50 years, which could eventually cause a 20-30% drop in grain production. CropWatch forecasted a 11.3% drop in wheat output for Alberta. In Saskatchewan, the bad crop situation is confirmed by low maximum VCI values, and the decrease in output is estimated to be 7.3%. In other provinces, below average rainfall occurred in Manitoba (-27%), Ontario (-11%), and Quebec (-13%). NDVI profiles also indicated gradually worsening crop condition, with NDVI close to average in Ontario, Quebec, and some scattered regions of Alberta and Saskatchewan and below average elsewhere.

Due to the drought condition, the overall drop in BIOMSS for Canada was 23% over the reporting period. Some crops were destroyed as a result of the drought, which in turn resulted in a decrease in the fraction of cropped arable land of 6 percentage points. If dry weather conditions continue into the next monitoring period, below average grain production can be expected. Table B.3 in Annex B presents the estimated production outputs for the country in 2015.

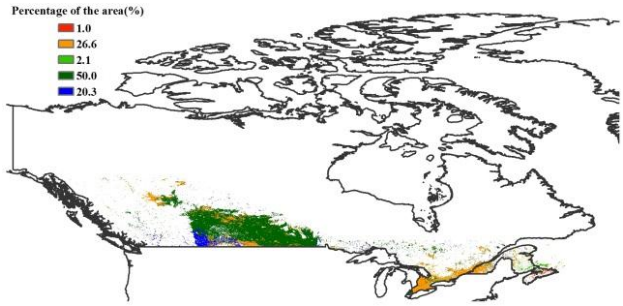
Figure 3.9. Canada crop condition, April-July 2015



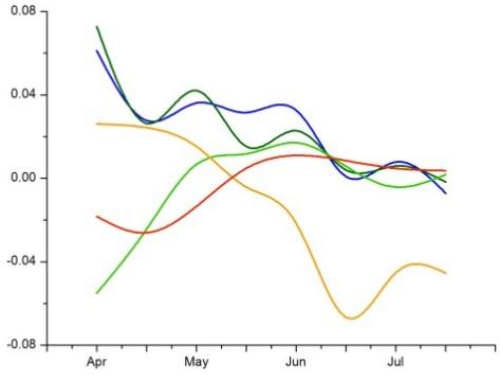
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

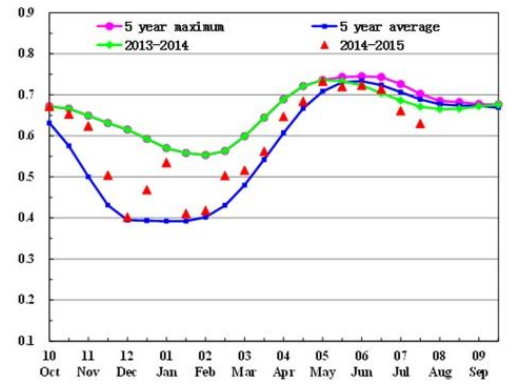


(d) NDVI profiles

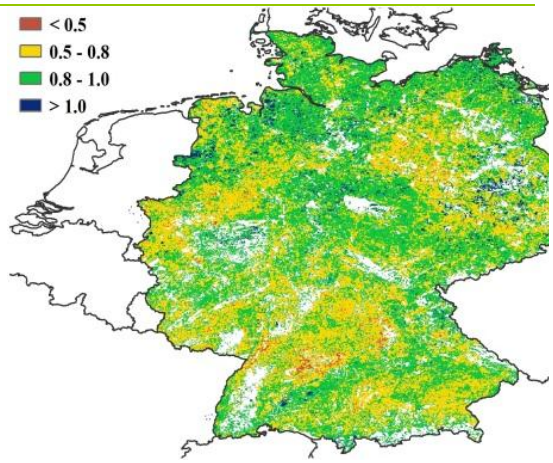
[DEU] Germany

Overall, crop condition in Germany over the monitoring period is average to below-average, and below last year's condition. Winter wheat, spring barley, and maize are the main grain crops of Germany; currently, winter wheat has been harvested, while spring barley and maize are in the vegetative stage. The country's spatial NDVI indicates a situation that on the whole is below average, except for 18% of crop areas scattered across the west of Baden-Wuerttemberg, northwest Bayern, western Sachsen, northern Schleswig-Holstein, and Mecklenburg-Vorpommern. This spatial pattern is also reflected by the maximum VCI in the different areas, with a VCIx of 0.81 for Germany overall. According to the crop condition map based on NDVI, Germany enjoyed a better situation than the five-year average from April to May due to sufficient rainfall, but this period was followed by severe water stress and high temperature, which lead to a worsening of the situation. The cropped arable land fraction was average compared to the five-year average. The CropWatch agroclimatic indicators show that the reporting period recorded a 24% drop in RAIN compared to average, a 0.2°C decrease in TEMP, and 1% above average RADPAR at the national level. With the rainfall deficit and high temperatures, BIOMSS on the national level is expected to decrease by 19% compared to the five-year average.

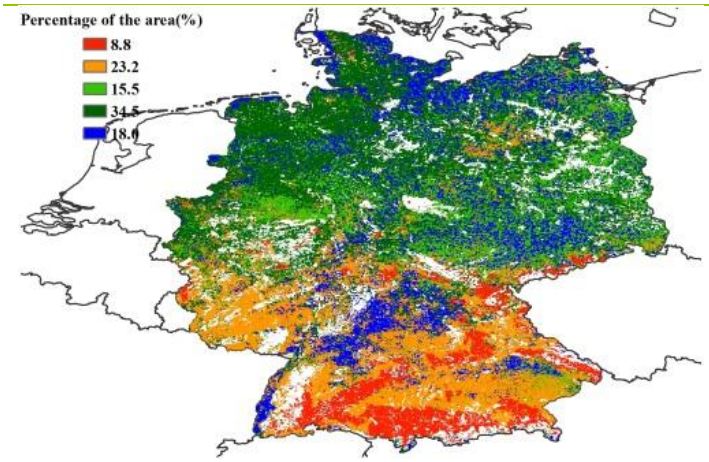
Figure 3.10. Germany crop condition, April-July 2015



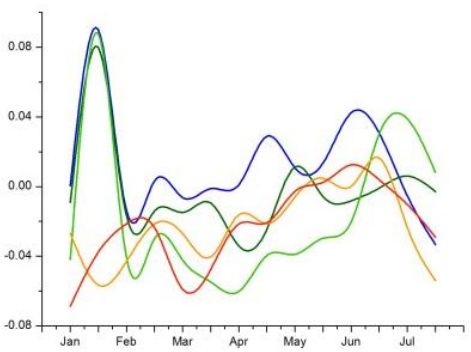
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

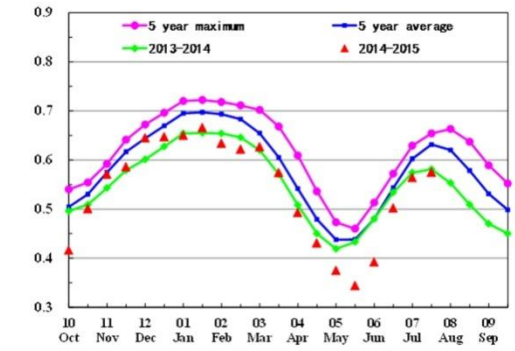


(d) NDVI profiles

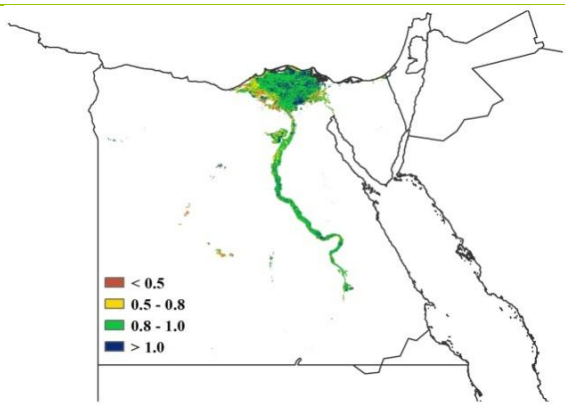
[EGY] Egypt

Crop condition was below the past five years' average during the whole monitoring period (April-July 2015), but close to last year's level from early July on forward. Currently, the winter wheat harvest has been completed and summer crops (maize and rice) are in the field. The CropWatch agroclimatic indicators show that rainfall (RAIN) and radiation (RADPAR) increased (+13% and +2%, respectively), but temperature dropped (-0.7°C) compared to average. Because of the favorable climatic condition, the NDVI values for summer crops at the national scale displayed a sharp increase that started late May, which is consistent with the relative high values for the biomass accumulation potential (BIOMSS, +13%) and the maximum VCI (0.89). The cropped arable land fraction (CALF) was equal to average. According to the spatial NDVI patterns, good crops (about half the crop areas) are distributed in the northern and eastern Delta. In the western and southwestern Delta, however, the crop condition was below average, even with a maximum VCI below 0.5 in some areas. Overall, the outcome of summer crops in Egypt is expected to be below the five-year average level but about similar to the output last year.

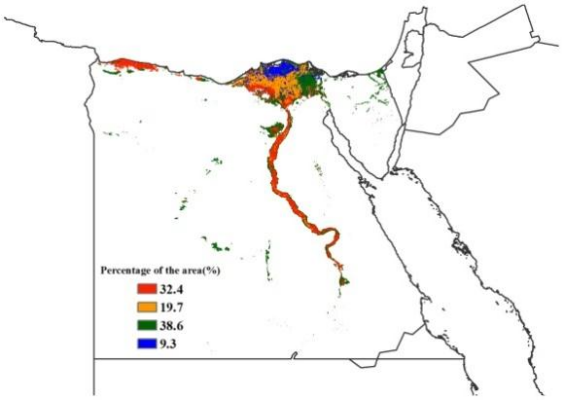
Figure 3.11. Egypt crop condition, April-July 2015



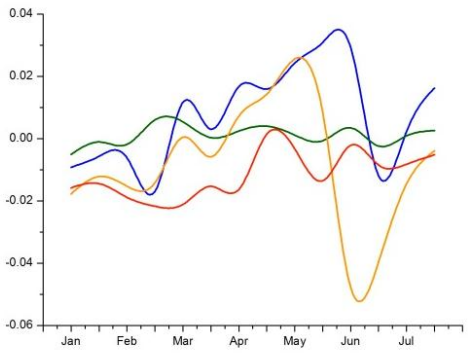
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

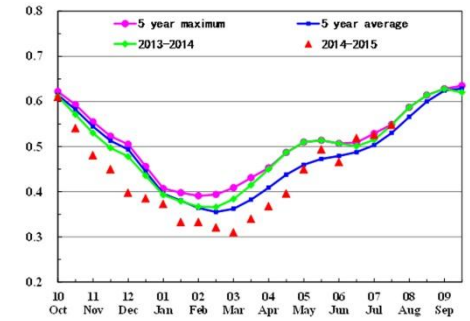


(d) NDVI profiles

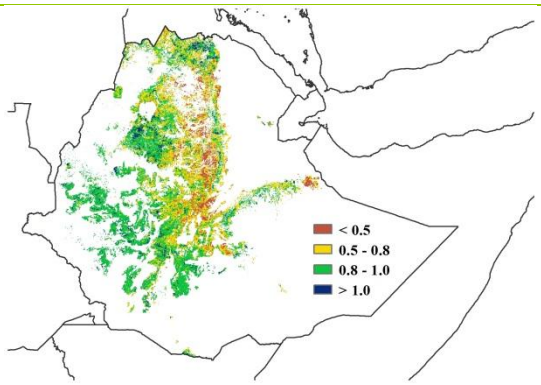
[ETH] Ethiopia

The Ethiopian Belg is a generally unreliable season during which short-cycled cereals are grown for which harvesting takes place early, usually before August. Crops of the "main" Meher season are planted between May and August and subsequently harvested in August or even significantly later in the season (this can be as late as December.) The current reporting period, which largely coincides with the planting of Meher and harvest of Belg crops suffered below average rainfall (-25%), slightly above average temperature (+0.4°C), and a more significant increase in sunshine. The resulting biomass production potential (BIOMSS, -22%) essentially regards Belg crops. National crop development profiles show below average crop condition until the end of May, which is an indicator for below average Belg crops due to drought. From June on forward, however, coinciding with Meher planting, the situation turned close to average. Considering the slight reduction in CALF (-2%) and fair VCIx values (0.88), it is likely that the Meher season was delayed due to insufficient soil moisture, but that the current situation, with NDVI close to the recent five-year maximum, shows globally favorable conditions for the Meher season. It is also stressed that there is good agreement between the average NDVI and the profile clusters, which converge at 0 (i.e., average) at the end of July. Altogether, after a reduced Belg output, current prospects are good for the ongoing Meher, especially in the southern half of the country.

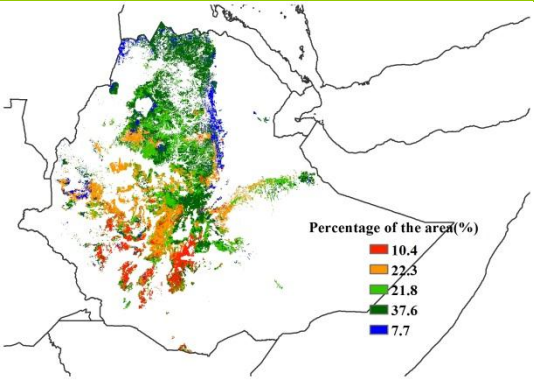
Figure 3.12. Ethiopia crop condition, April-July 2015



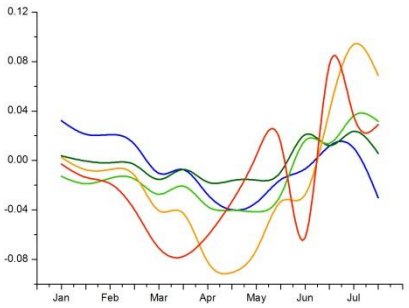
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

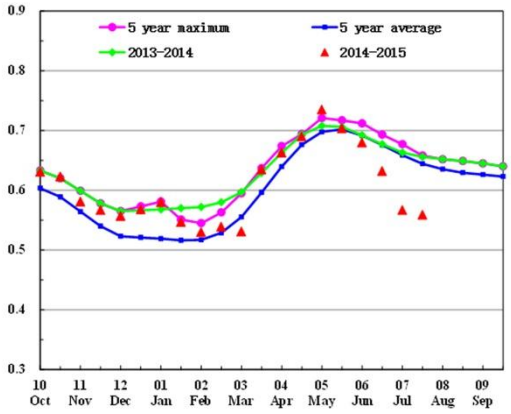


(d) NDVI profiles

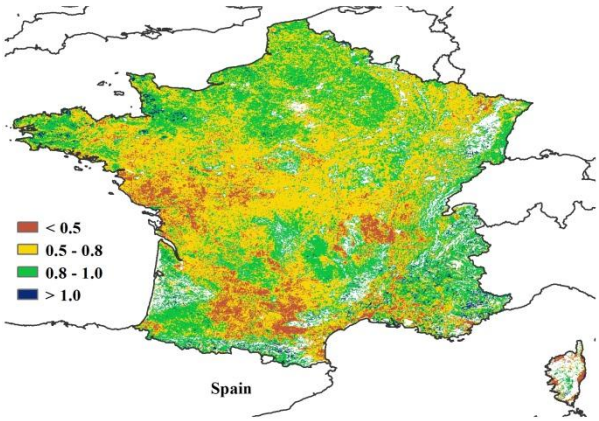
[FRA] France

Crops in France show above-average to below-average condition over the reporting period. Currently, soft wheat and spring barley have been harvested, while maize is in the vegetative stage. Compared to average, CropWatch agroclimatic indicators show that the reporting period recorded a 38% drop in RAIN, a 0.5°C increase in TEMP, and 4% above average RADPAR at the national level. BIOMSS presents a 36% decrease compared to the five-year average due to scarcity of rainfall. As shown by the crop condition development graph, national NDVI values were well above average and even close to the five year maximum from April to May due to sufficient rainfall at the end of April. National NDVI values began to drop below average from June—dropping even below last year's values, which is consistent with the lack of rainfall and high temperature during this period. The spatial NDVI patterns compared to the five-year average and corresponding NDVI departure cluster profiles also indicate that NDVI is above average in only 17.8% of arable land, namely in the northeast of Provence-Alpes-Côte-d'Azur, the south of Languedoc-Roussillon, the northwest of Midi-Pyrenées, the south and north of Poitou-Charentes, and middle of Champagne-Ardenne. In contrast, in the other regions the NDVI is below average. This spatial pattern is also reflected by the maximum VCI in the different areas, with a VCIx of 0.74 for France overall. Generally, due to rainfall deficit and high temperature, the agronomic indicators mentioned above show unfavorable condition for most crop areas of France. More rain for rainfed arable land regions is needed in the next few months.

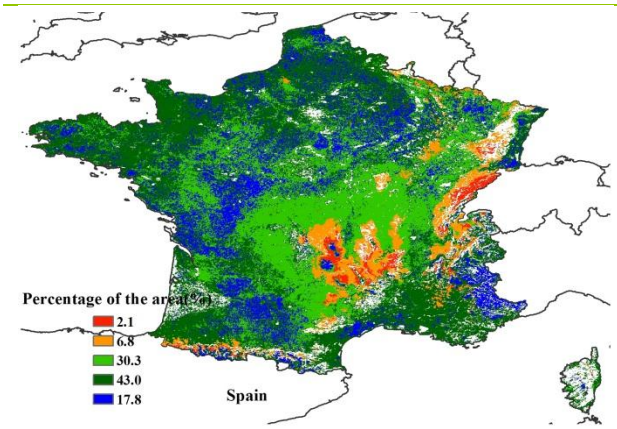
Figure 3.13. France crop condition, April-July 2015



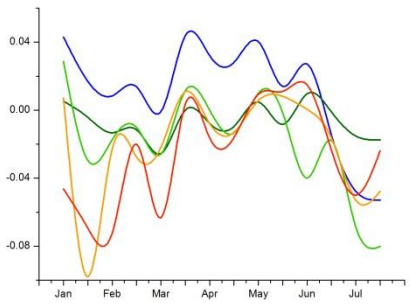
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

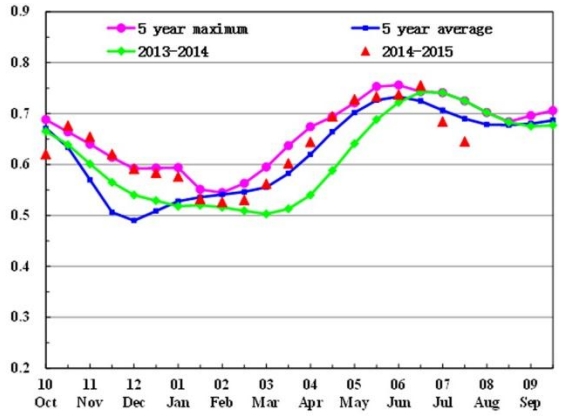


(d) NDVI profiles

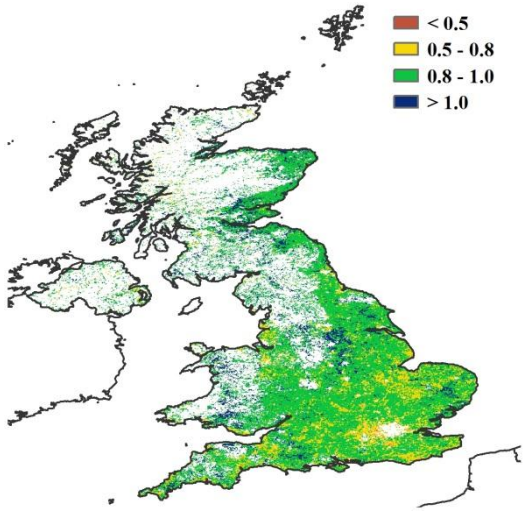
[GBR] United Kingdom

Generally, crops in the United Kingdom showed favorable condition over the reporting period. Currently, most of the winter wheat and oats and all the winter barley and winter rape have been harvested, while spring barley is in the vegetative stages. Compared to average, the CropWatch agroclimatic indicators show that rainfall over the reporting period was average, with slightly below average radiation (RADPAR, -2%) and temperature (TEMP, -1.1°C). With water stress in May and high temperature in June, BIOMSS decreased by 7% compared to the five-year average at the national scale. As a result of adequate rainfall in April and the appropriate temperature conditions from April to June, the national NDVI values were well above average and even close to the five-year maximum from April to June according to the crop condition development graph. From late June to July, due to reduced rainfall and warmer-than-seasonal weather, the national NDVI values dropped to below average. The spatial NDVI patterns, when compared to the five-year average, and corresponding NDVI departure cluster profiles indicate above average NDVI values over the country for more than 51.2% of arable land (including south of Lincoln-shire, most of Cambridge-shire and Suffolk, Bucks, and the shires of Gloucester, Oxford, Warwick, Hereford, Worcester, Northampton, and Perth and Kinross, as well as the west of Cornwall, middle of Durham, and the north of Northumberland. The spatial pattern is also reflected by the maximum VCI in the different areas, with a VCIx of 0.89 for the country overall.

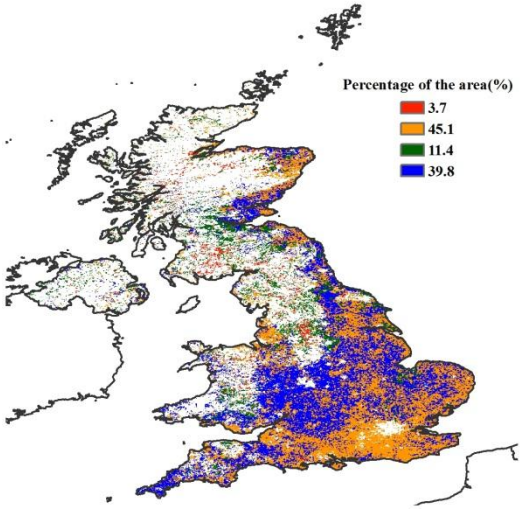
Figure 3.14. United Kingdom crop condition, April-July 2015



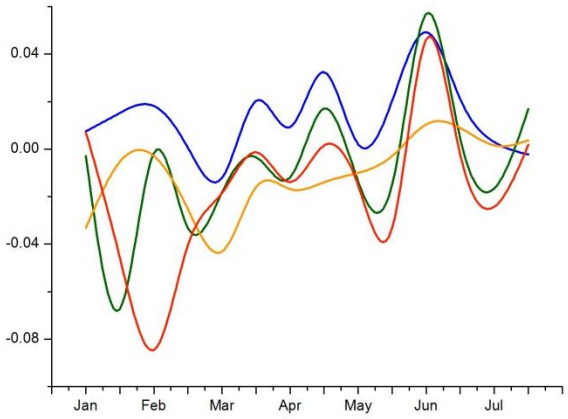
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

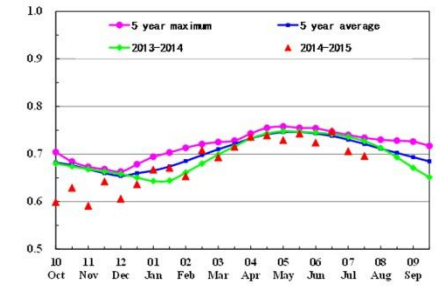


(d) NDVI profiles

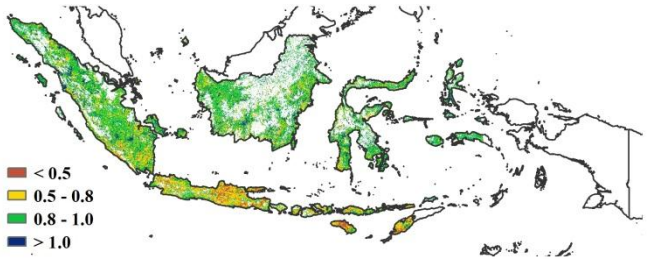
[IDN] Indonesia

The crops in Indonesia generally show poor condition between May and July. The monitoring period covers the whole harvest of the main rice and rainy season maize, as well as secondary rice. Compared with the recent average, RADPAR and TEMP were slightly above average (+3% and +0.3◦C, respectively). As a result of El Niño conditions (see also section 5.4), a significant rainfall (RAIN) deficit of 19% was recorded; consequently, biomass production expectations (BIOMSS) were far below average (-23%). According to the NDVI clusters, crop condition in Sumatra Selatan, Jambi, and Riau was above average from May to July, while the rest of the country experienced unfavorable conditions (low precipitation and high temperature). The maximum VCI map confirms that crop condition was bad in Nusatenggara Timur, Jawa Tengah, Jawa Timur, and other islands in the southern part of the country. National NDVI profiles also show poor crop condition in the monitoring period. Altogether, CropWatch estimates that dry conditions have caused yield reduction in this season's crops.

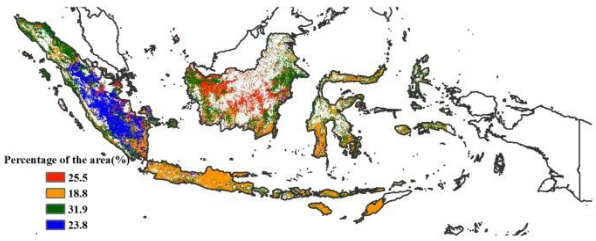
Figure 3.15. Indonesia crop condition, April-July 2015



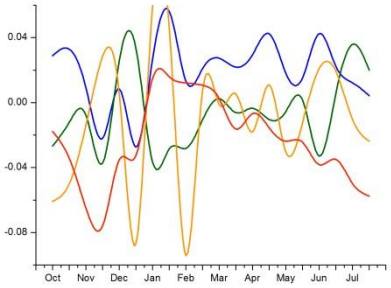
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

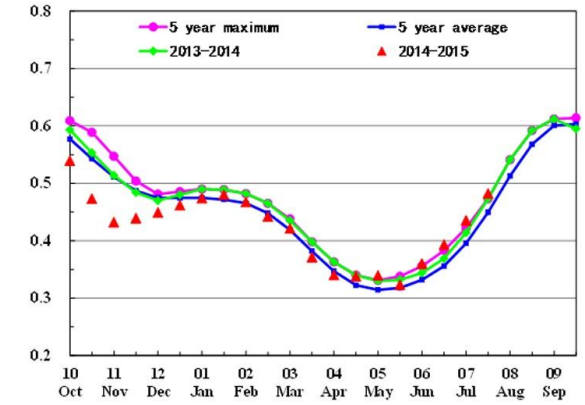


(d) NDVI profiles

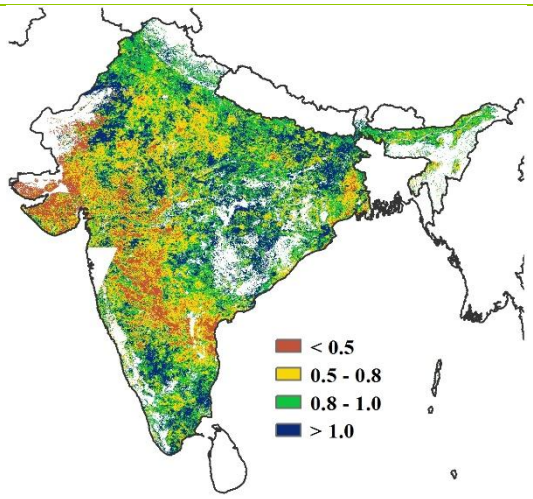
[IND] India

The reporting period corresponds mainly to the harvesting of Rabi and planting of Kharif crops. Heavy monsoon rain and cyclone Komen caused severe floods in several states. Mostly affected regions were Assam, Meghalaya, Manipur, Telangana, Maharashtra, Gujarat, Haryana, Uttarakhand, and Orissa. Flooding damaged the standing Kharif crop in these regions. However, over the reporting period crop development was above average and reached a record maximum. The maximum VCI values were never below 0.5, which confirms average crop condition over the country. The NDVI values were favorable until the end of June, but a drop started in early July. Several states experienced above average rainfall (RAIN), including Assam (+27%), Bihar (+35%), Chhattisgarh (+36%), Haryana (+36%), Jharkhand (+60%), Tripura (+93%), Uttar Pradesh (+18), Punjab (+6%), Orissa (+20%), and West Bengal (+75%). High rainfall led to positive biomass accumulation (BIOMSS) and good Kharif crop condition, but also to the mentioned floods in much of the country's northeast. Low rainfall was experienced in some states like Gujarat (-51%), Goa (-70%), Kerala (-31%), Karnataka (-27%), and Maharashtra (-37%). Low rainfall triggered average NDVI for the region, indicating average crop condition in those places. Temperature (TEMP) was average, while radiation (RADPAR) was below average in several states including Assam (-3%), Himachal Pradesh (-5%), Haryana (-2%), Jharkhand (-4%), Tripura (-7%), Sikkim (-4%), and west Bengal (-6%). The crop arable land fraction (CALF) dropped by 6 percentage points compared to the previous five-year average. Overall, adverse weather condition including excess rainfall and floods in some places as well as droughts in others have resulted in the reduction of cultivated land and likely reduced outputs, especially for rainfed crops.

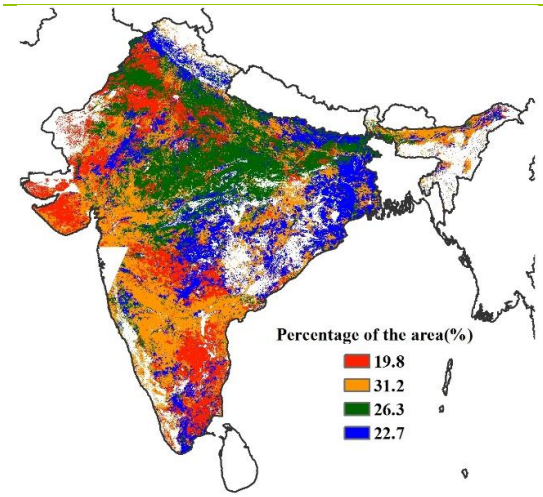
Figure 3.16. India crop condition, April-July 2015



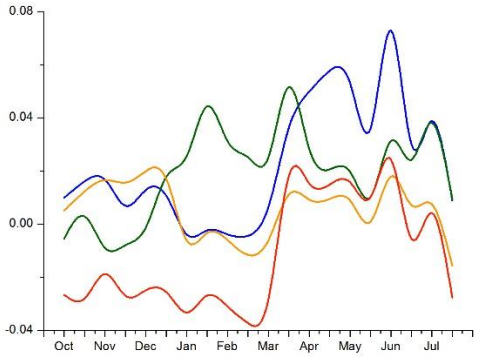
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



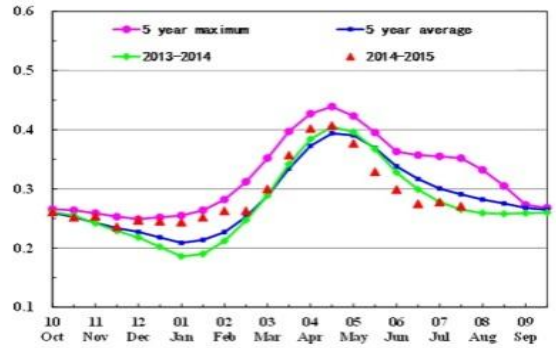
(d) NDVI profiles

[IRN] Iran

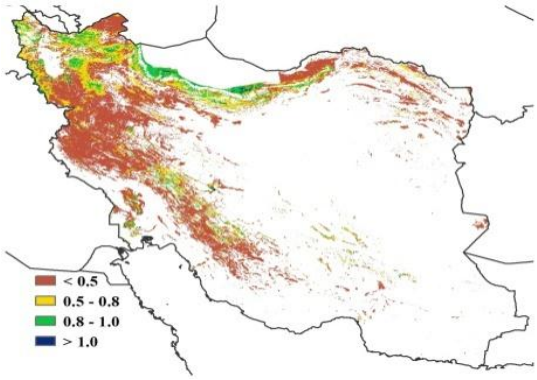
In Iran, crop condition was generally below average for the reporting period. Winter wheat was harvested from June to July, while the sowing of summer crops (potato and rice) began in May. Rainfall (RAIN) was far below average in the monitoring period, while temperature (TEMP) and radiation (RAIN) were above. CropWatch agroclimatic indices for the current season show significantly unfavorable conditions for crop growth, which is confirmed by the decrease of the BIOMSS index by 33% and low average VCIx (0.41).

Crop condition in the most of north-western region was above or close to the five-year average from April to May, while it was below average from June to July. Khuzestan and Fars provinces in the southwest region, Razavi Khorasan province of the northeast region, and the Mazandaran and Gilan provinces of the central north region generally experienced below average crop condition from April to July. Overall, the outcome of winter crops is average while crop condition of summer crops is poor.

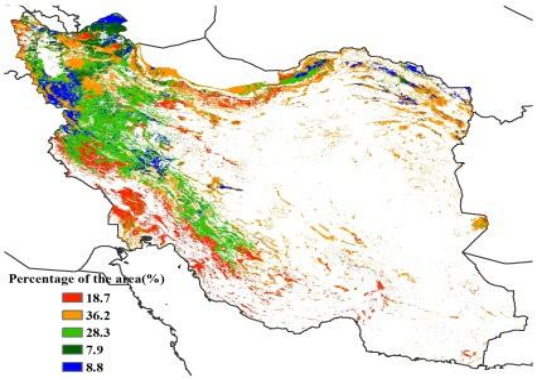
Figure 3.17. Iran crop condition, April-July 2015



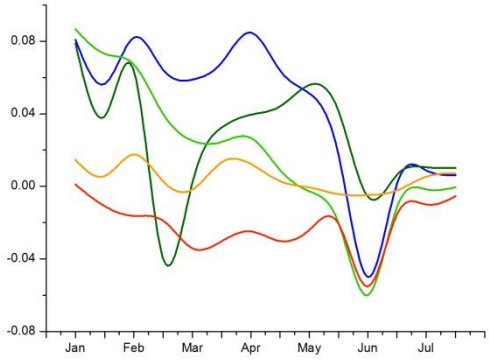
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

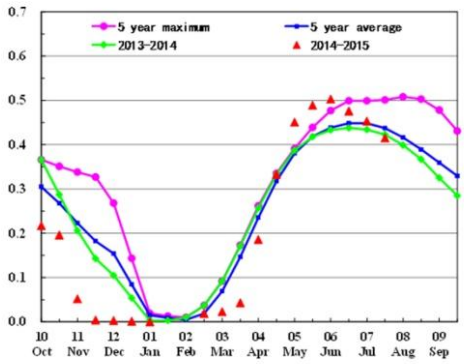


(d) NDVI profiles

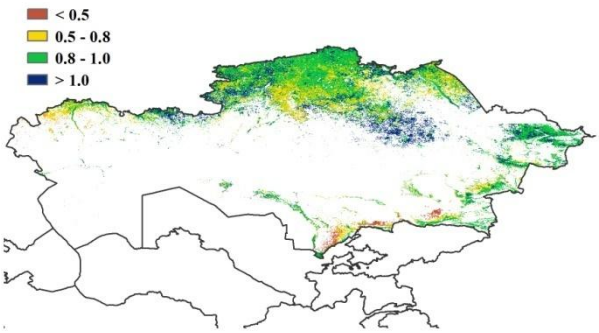
[KAZ] Kazakhstan

In Kazakhstan spring wheat, barley, and other cereals currently in the field were sowed before June; they are now in the vegetative stage. Rainfall (RAIN) and temperature (TEMP) were above average (+41% and +0.7°C), with also BIOMSS sharply above average (+42%). From March to April, floods occurred in parts of Kazakhstan and negatively affected crops for some time. However, stored moisture led to fast growth, to the extent that in May and June crop condition was far above the maximum of the last five years. Considering the NDVI profiles and spatial NDVI patterns (compared to the last five years), most areas in Kazakhstan were above average after April, except for the south of Yujno-kazachstanskaya, Jambylslkaya, and Almatinskaya Oblasts, where maximum VCI did not exceed 0.5. Since late June, national NDVI gradually decreased, but nevertheless stayed close to average. Thanks to abundant rainfall, crop and rangeland prospects are favorable in the country.

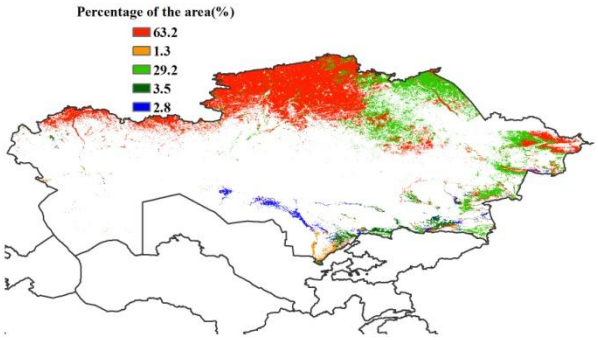
Figure 3.18. Kazakhstan crop condition, April-July 2015



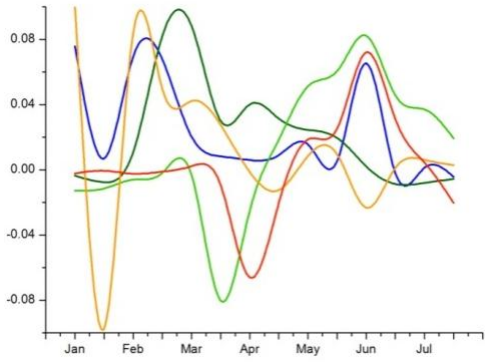
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

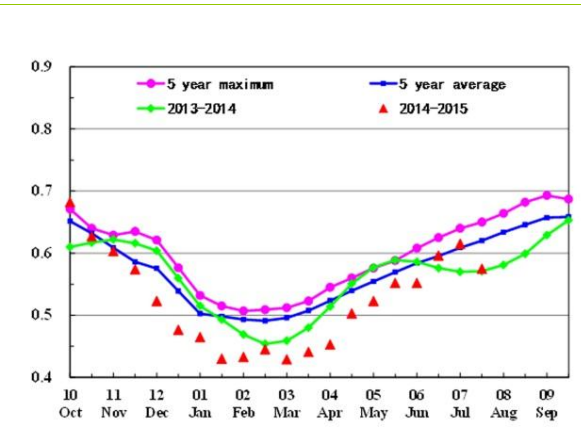


(d) NDVI profiles

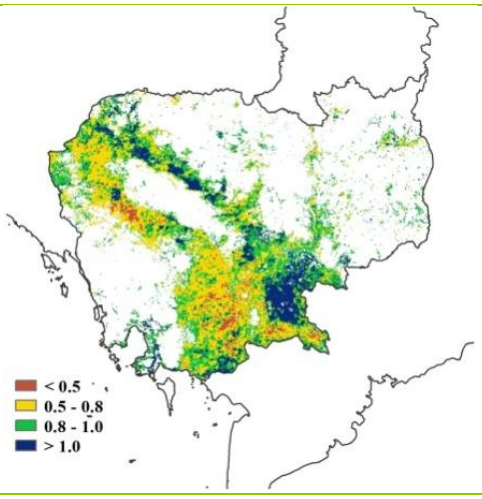
[KHM] Cambodia

The period from April to July 2015 covers the harvest of the second (dry season) rice, the early stage of the main (wet season) rice, and the growing period of maize. Compared to the five-year average, crop condition before July was below average. The CropWatch agroclimatic and agronomic indicators show that Cambodia suffered a minor drop in precipitation compared to average (RAIN, -3%), which decreased the biomass accumulation expectations (expressed by BIOMSS) by 5% compared to the recent five-year average, while TEMP (+0.8°C) and especially RADPAR (+5%) were higher than average. At the same time, the fraction of cropped arable land (CALF) decreased 6 percentage points compared to average. Low vegetation condition indices (VCIx) occur in a scattered way south of Tonle Sap, which is attributed to shortage of rain in Kampong Seu, Kampong Chhnang, and Pursat. Overall crop prospects for the country are not optimistic.

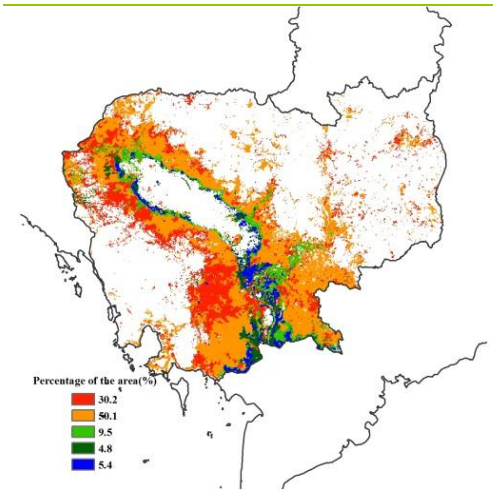
Figure 3.19. Cambodia crop condition, April-July 2015



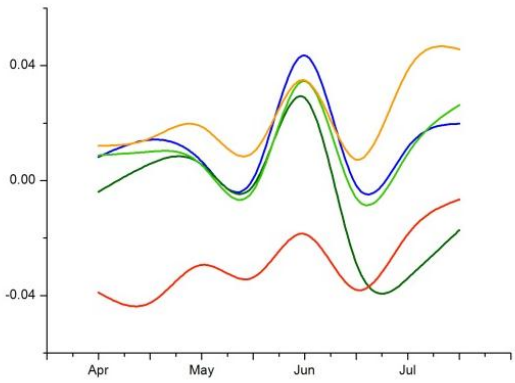
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

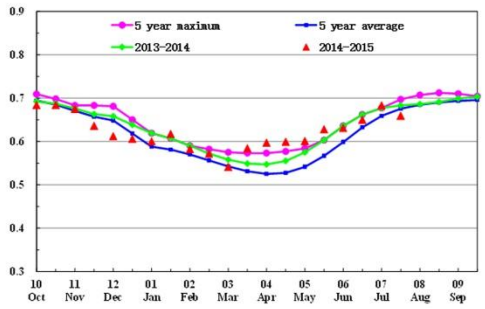


(d) NDVI profiles

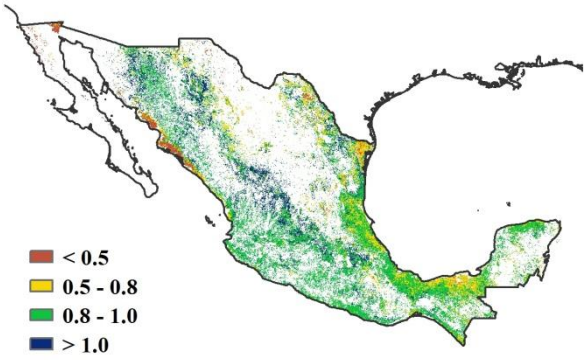
[MEX] Mexico

Overall, crop condition in Mexico was above the five-year average between April and early July. During the monitoring period, last year's winter wheat and secondary maize were harvested; this year's maize is still growing. The CropWatch agroclimatic indices show that rainfall, radiation, and temperature were close to average (only deviating by -4%, -2% and -0.1°C, respectively). According to the crop condition development graph based on NDVI, the NDVI values at the national scale exceeded the past five-year maximum from April to May; since June, the values were close to or below the maximum. Finally, in late July, the value was again below the last five year average. Over the reporting period, the biomass accumulation potential (BIOMSS) was significantly above average (+14%). Moreover, the cropped arable land fraction (CALF) increased slightly compared to average (+5%). Considering both favorable condition of growth and increased CALF, the yields of summer crops in Mexico are expected to be above the five-year average.

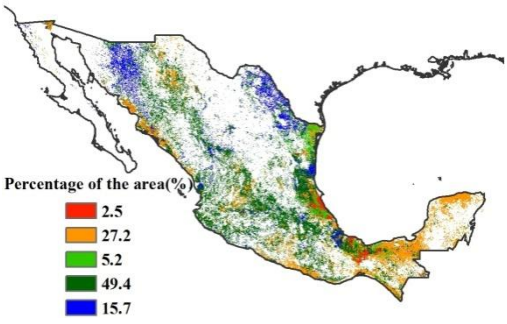
Figure 3.20. Mexico crop condition, April-July 2015



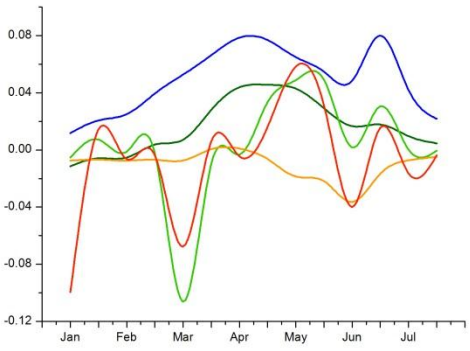
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

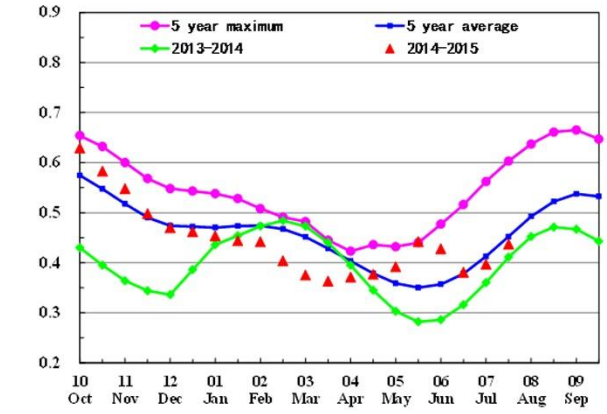


(d) NDVI profiles

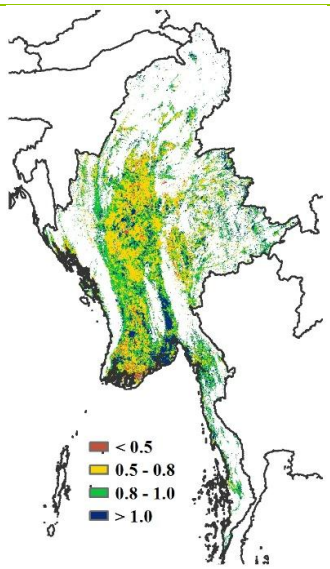
[MMR] Myanmar

The reporting period is the main rice season in Myanmar. In late July, cyclone Komen hit the country and caused severe floods that damaged the standing rice crop, especially in Sagaing, Magway, Chin, and Rakhine regions. Overall, however, crop condition is average according to the CropWatch indicators, in spite of rainfall for the country overall decreasing by 12% and the biomass accumulation potential dropping 6% below average. Temperature and radiation over the monitoring period were average. Crop condition development was above the previous five-year average from May to June, while below average values prevailed from early June to July. The maximum VCI values ranged from 0.5 to 1, indicating favorable crop condition. The spatial NDVI profile values were average from April to June, but dropped in early July to recover again in mid-July for the whole country except Yangon and eastern Kengtuang region, which experienced a gradual decrease of NDVI values from late June on forward. No changes were noted in the cropped arable land fraction when compared to the five-year average. Overall, the CropWatch indicators point to average production prospects for the country.

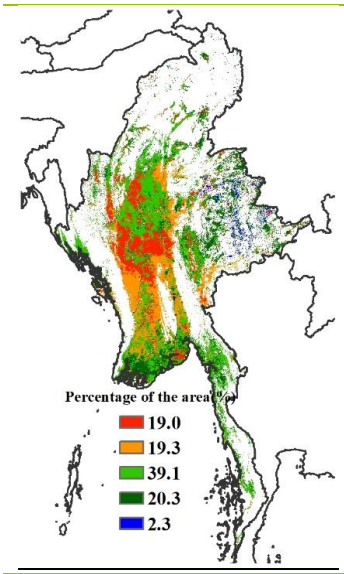
Figure 3.21. Myanmar crop condition, April-July 2015



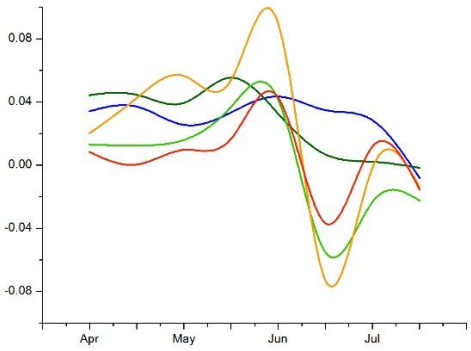
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

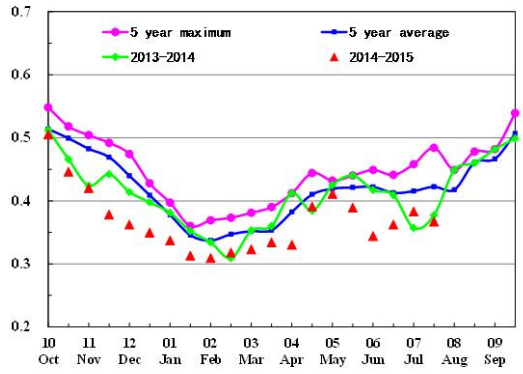


(d) NDVI profiles

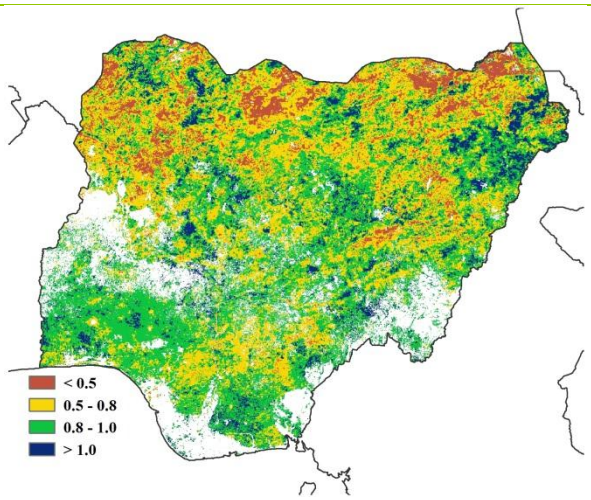
[NGA] Nigeria

Climatic conditions vary greatly in Nigeria, with the south of the country enjoying a very long rainy season between April and November, while the northernmost areas usually plant maize in July for a harvest in September. The major maize producing areas in the country cover an east-west oriented area roughly between the latitudes of 7 and 11 degrees north, with planting varying from March-April (in the south of the area) to May (in the north). Altogether, cereals account for about 10% of food production in Nigeria, with cassava and yams being the major food crops, especially in the more humid south. National CropWatch agroclimatic indicators have been close to average during most of the reporting period, listing average rainfall and slightly above average temperature and sunshine, which nevertheless are resulting in a 6% drop in biomass production potential due to some spatial differences not taken into account by the national agroclimatic indices. NDVI profiles have fluctuated over the reporting period, but they were generally close to average in July. The combined effect of NDVI profiles, VCIx (0.83 average, with low values concentrated in the northern half of the country) and CALF (-10%) indicates generally average conditions, with the possibility of a somewhat late season in the north.

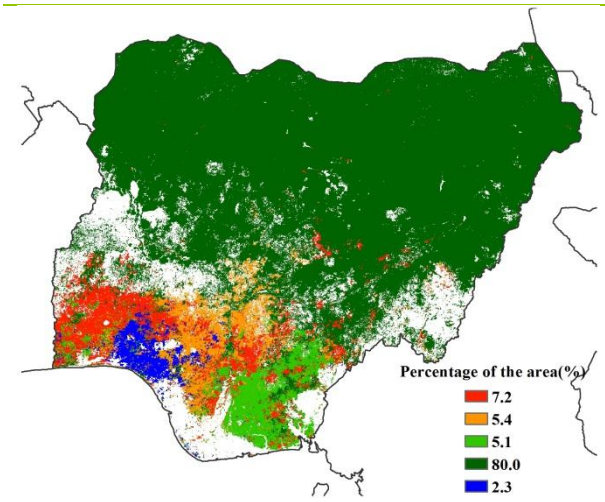
Figure 3.22. Nigeria crop condition, April-July 2015



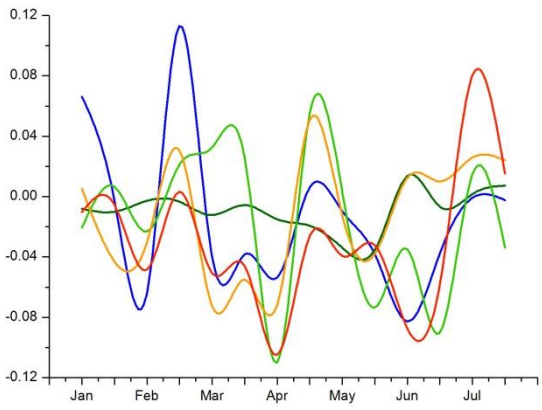
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

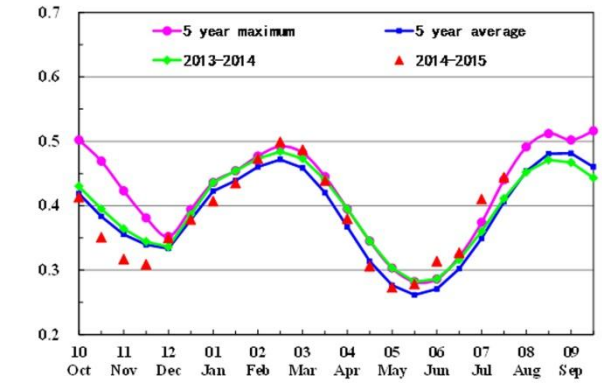


(d) NDVI profiles

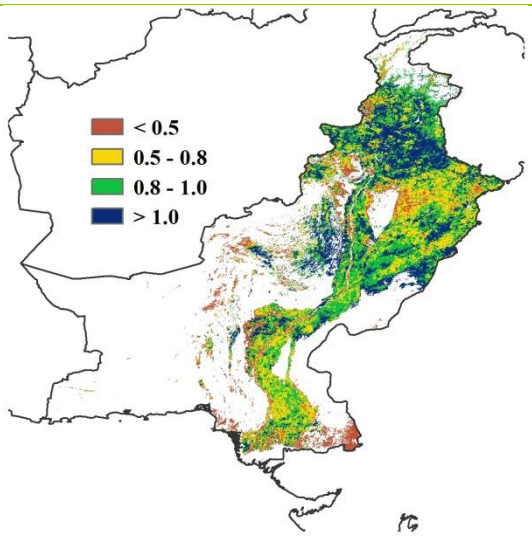
[PAK] Pakistan

The reporting period coincides with the harvest of winter wheat and barley, the sowing and growing stage of summer crops (cotton and rice), and the sowing of summer maize. Agroclimatic indicators show an increase of rainfall (RAIN, +17%) and decrease of radiation (RADPAR, -3%), compared to average. Temperature was below average (TEMP, -0.8°C), while biomass production potential is above (BIOMSS, +19%). CALF slightly increased (+1 percentage point) over its five-year average. The national NDVI development graph indicates that crop condition was unfavorable in April, but later gradually improved and peaked at the beginning of July, reaching values comparable to the maximum of the past five years. The lowest maximum VCI values (0.5) occur in North Balochistan, the south of Khyber Pakhtunkhwa, and south Sindh. According to the NDVI profiles, 44% of the cropped areas display above average conditions from the beginning of April, much of it in Punjab, especially in the north. Remaining areas (56%) show average conditions. Altogether, crop condition is estimated to be above average.

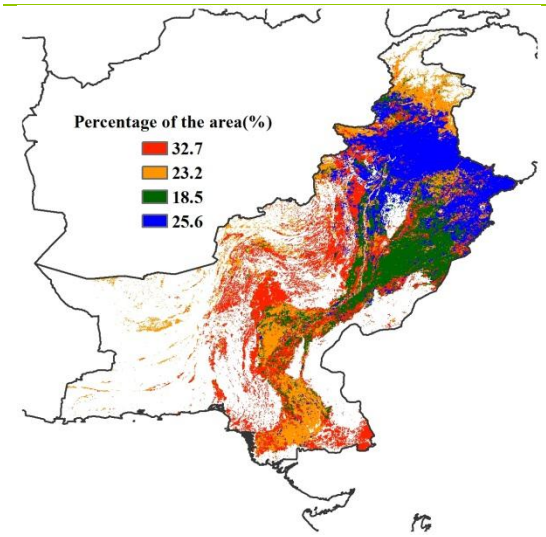
Figure 3.23. Pakistan crop condition, April-July 2015



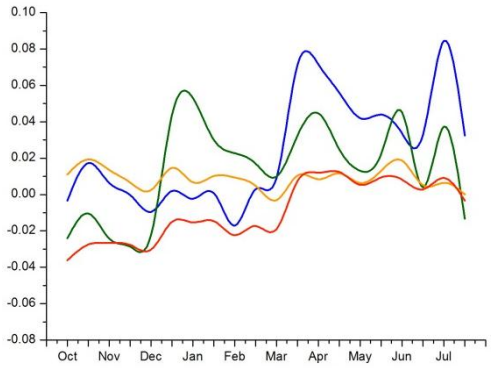
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

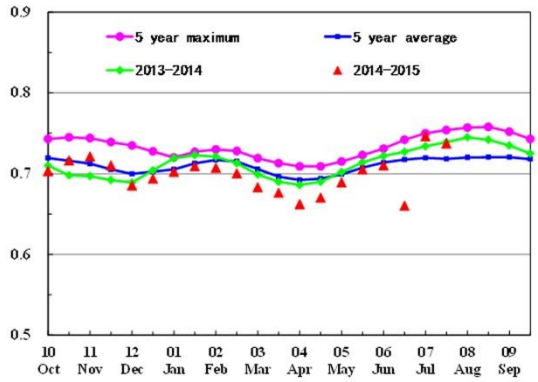


(d) NDVI profiles

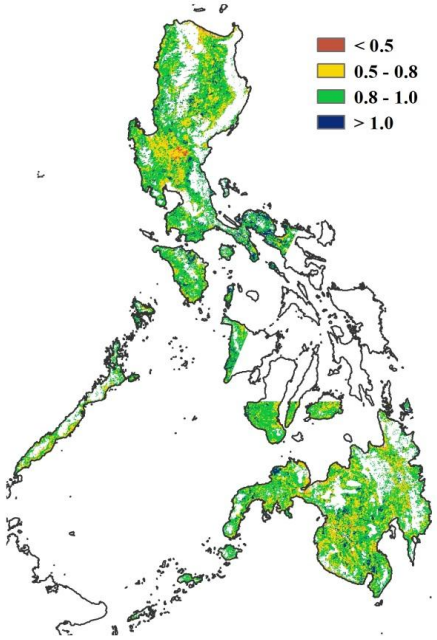
[PHL] The Philippines

In the Philippines, the main rice crop is currently growing, while maize has reached maturity and is about to be harvested. Nationwide, temperature (TEMP) and radiation (RADPAR) were slightly above average (+0.4°C and +5%), while rainfall (RAIN) decreased by 5%, mainly resulting from El Niño conditions; the biomass accumulation potential (BIOMSS) for the country shows a significant decrease of 15%. Considering the spatial patterns of NDVI profiles, crop condition in Luzon was above average in May, while after early June it declined sharply. In the southern part of Philippine islands, including Caraga, Davao, and Soccsksargen in southern Mindanao, crop condition was below average due to seasonal rainfall deficits from May to July. NDVI in late June was significantly below average but it recovered in July. Altogether, the output of the main season rice is expected to be below average.

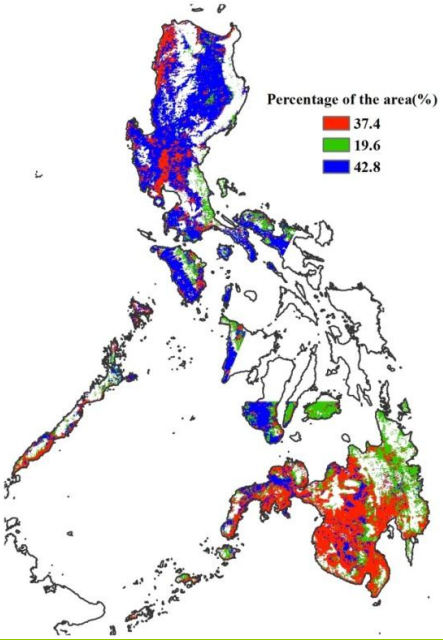
Figure 3.24. Philippines crop condition, April-July 2015



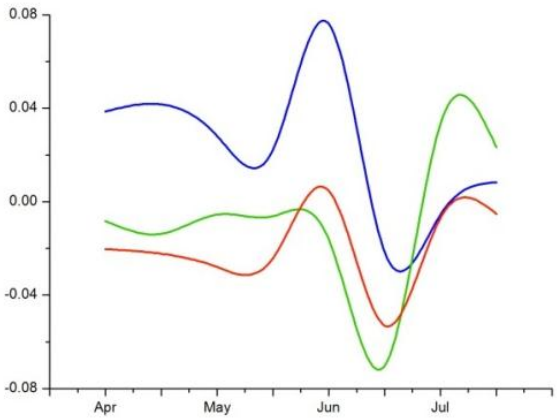
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



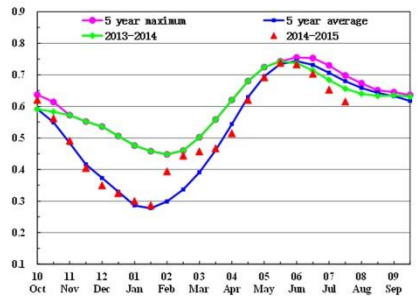
(d) NDVI profiles

[POL] Poland

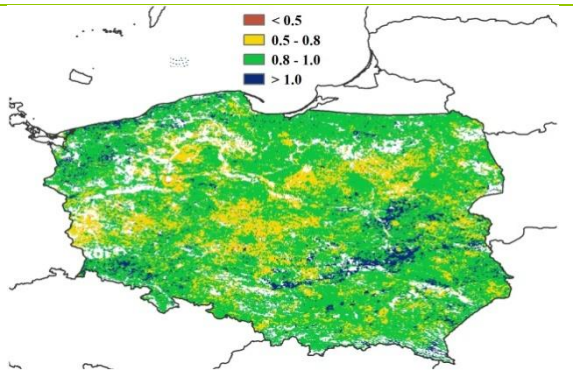
In Poland, maize planting begins in May, while winter wheat harvesting starts in July. The cropped arable land fraction (CALF) is same as the average of the last five years. During April to July, rainfall (RAIN) was -26% compared to average, and temperature (TEMP) dropped 0.7°C. RADPAR is near average (+1%), while the potential biomass (BIOMSS) is significantly decreased due to the insufficient rainfall.

As shown in the NDVI crop condition development graph, the NDVI in Poland is lower than usual from June on forward, particularly in the south and east of the country (including Warsaw, Lodz, and Radom). The maximum VCI shows that in more than 85% of the country crop condition is favorable. In the west and center, including Lubuskie, Wielkopolskie, Kujawsko-Pomorskie, and Lodskie, the crop condition is lower than usual due to the drought. Considering the average VCIx of 0.86, the final assessment for Poland is that crop condition is mixed but fair.

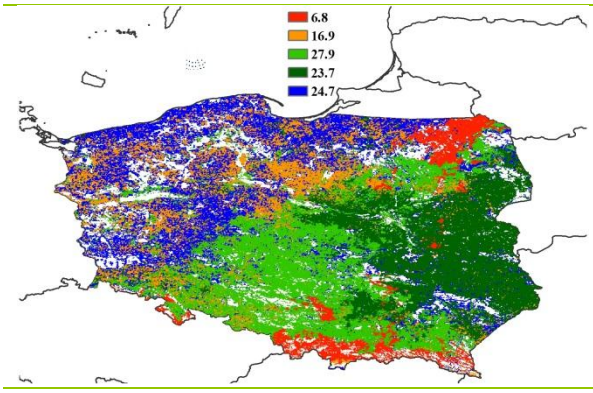
Figure 3.25. Poland crop condition, April-July 2015



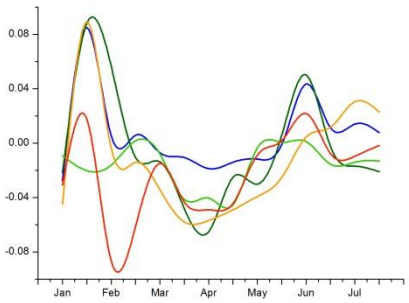
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



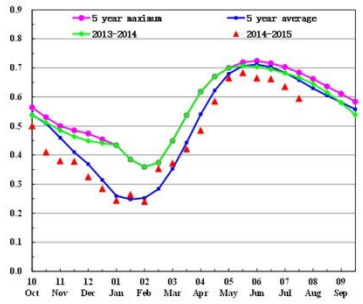
(d) NDVI profiles

[ROU] Romania

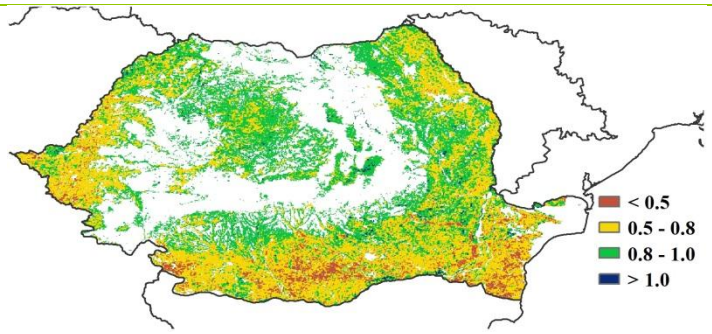
Romania presented average crop conditions during January to April (VCIx=0.76), a period that covers the harvest of winter wheat (starting in July) and the planting of summer crops, especially maize (planted before May). During this monitoring period, the fraction of cropped arable land dropped 3 percentage point compared with the recent five-year average. Overall, temperature (TEMP) was just above average while rainfall (RAIN) dropped 25%. Due to the dry weather, the potential biomass (BIOMSS) decreased 23% compared with the average.

As shown in the NDVI crop condition development graph, NDVI over the monitoring period was below the recent five-year average from April on forwards. In most parts of southern Romania, including Craiova, Bucharest, and Bacau, the crop condition is near or below average (VCIx < 0.8). In these areas, the NDVI is significantly lower than the five-year average. Especially in the south of the country, the crop outlook is poor.

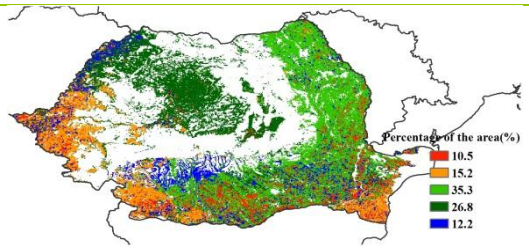
Figure 3.26. Romania crop condition, April-July 2015



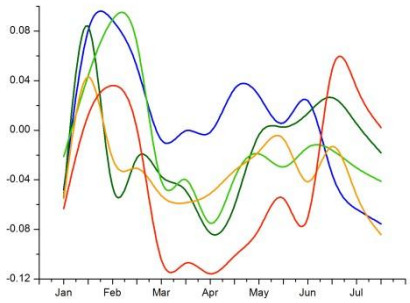
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



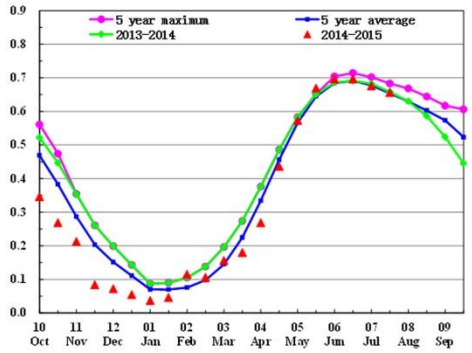
(d) NDVI profiles

[RUS] Russia

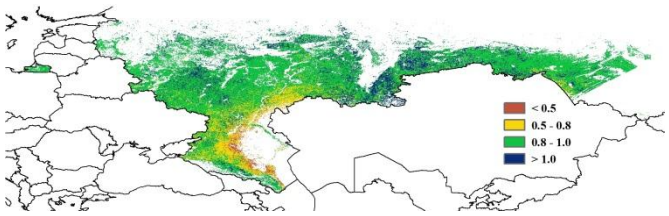
Russia experienced very favorable environmental conditions from April to July (VCIx=0.91).The winter wheat harvest in the country began in mid-June, while the planting of maize and spring wheat started in April. The fraction of cropped arable land was 1 percentage point above the five-year average. In general, Russia experienced warm and wet conditions over the recent four months. Precipitation exceeds the recent average (RAIN, +8%) and the temperature was just slightly above average (+0.1°C). Mainly due to weather, the BIOMSS indicator rose 14% over the last five-year average.

As shown in the NDVI crop condition development graph, the NDVI is close to average in this monitoring period. The crop condition is favorable in most parts of Russia's cropland (VCIx>0.8). The spatial NDVI patterns show that in some parts of southern Russia, including in Volgograd and Rostov, the NDVI is significantly below the five-year average before June and above average after. In Russia's eastern cropland areas, from Orenburg to Novosibirsk, the NDVI is above average from April to July. Due to the abundant water supply, the harvest of winter wheat in these areas has been advanced. Overall crop condition is favorable.

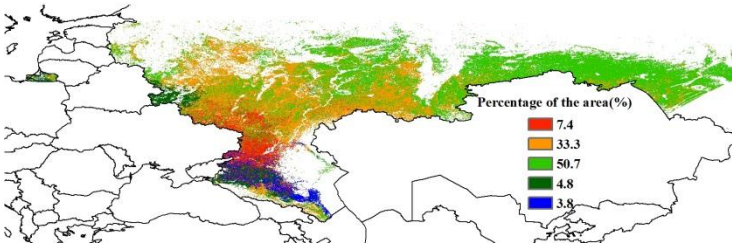
Figure 3.27. Russia crop condition, April-July 2015



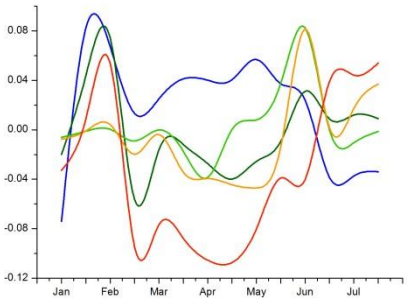
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



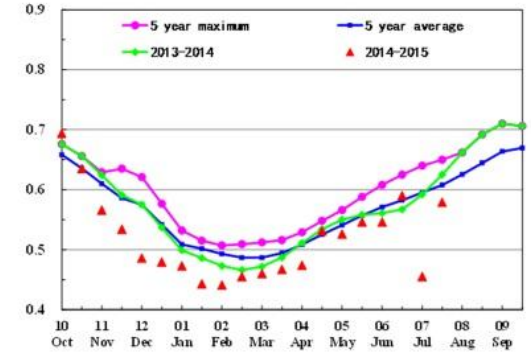
(d) NDVI profiles

[THA] Thailand

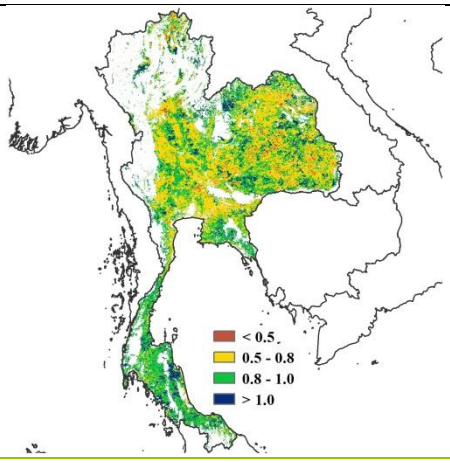
Crop condition from April to July 2015 was below average in Thailand. In most areas, the main rice is in the sowing stage (particularly in the northeastern region), while the harvest of the country's second rice crop was completed in June. Accumulated rainfall was below average during the monitoring period, while the temperature and radiation were above. The agroclimatic indices show poor growing condition, which is confirmed by the decrease of the BIOMSS index by 13%. The VCIx map presents a consistent spatial pattern with the NDVI cluster map in the central and northeastern regions.

Crop condition was below average from April to June in the southeast region and the south of the central region. Favorable crop condition is found in the areas from the Ang-Thong to Singburi provinces, extending north to Phitsanulok province. In Lopburi and Chaiyaphum provinces in the central region, as well as in the northwest region, crops developed under favorable conditions from April to May, but then deteriorated from June and recovered to an average level at the end of July. Overall, the outcome for the second season rice is unfavorable; the crop condition of main rice for Thailand can be assessed as poor or mixed.

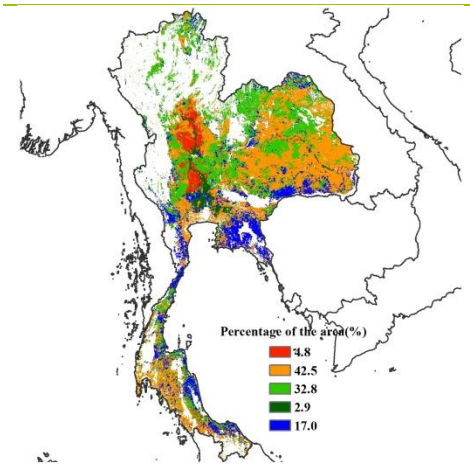
Figure 3.28. Thailand crop condition, April-July 2015



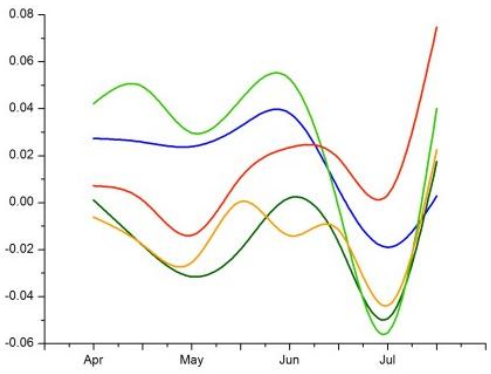
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



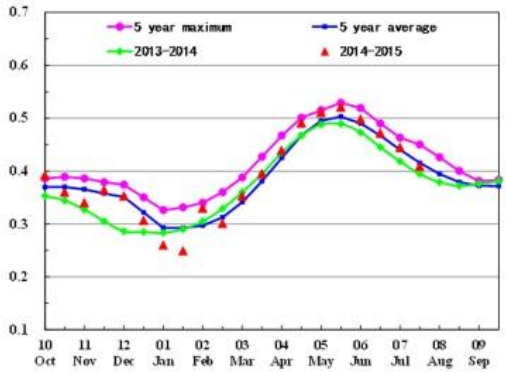
(d) NDVI profiles

[TUR] Turkey

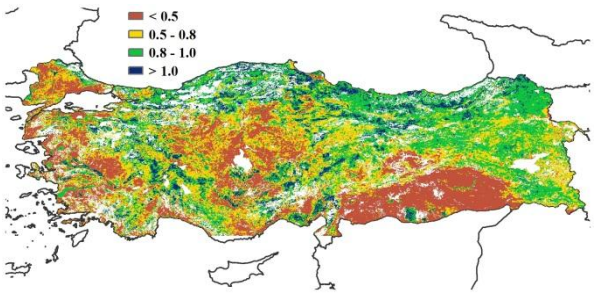
The crop condition from April to July 2015 was generally above average in Turkey. Winter wheat harvest was completed during the monitoring period, and summer crops (maize, rice, and potato) were sown from April on forward and are still growing. Accumulated rainfall (RAIN) and temperature (TEMP) were above average (although less so for temperature), while RADPAR was slightly below average. The agroclimatic conditions resulted in a BIOMSS decrease of 5% below the average of the previous five years. The maximum VCI (0.68) was above average, and the fraction of cropped arable land (CALF) significantly increased by 6% compared to the recent five-year average. Production of winter crops is expected to be comparable to the average of the previous five years.

Crop condition above the recent five-year average prevailed over most of Central Anatolia. In the province of Uşak, the surrounding areas of the Aegean region, and in south-eastern Anatolia crop condition changed from favorable to unfavorable during the middle of May and recovered to average in the middle of June. Poor growth conditions concentrated in the Eastern Anatolia and the Marmara regions over the whole monitoring period. Overall, the outcome for the winter crop season is favorable, while the outlook for the summer crops is mixed.

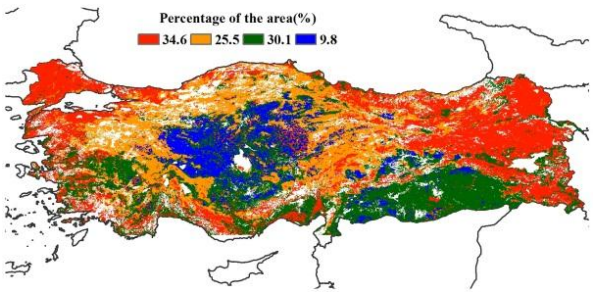
Figure 3.29. Turkey crop condition, April-July 2015



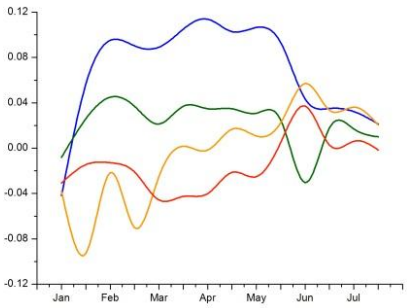
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

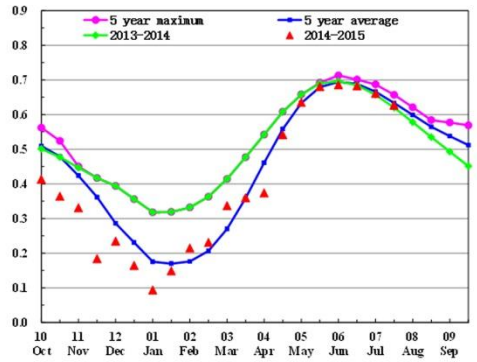


(d) NDVI profiles

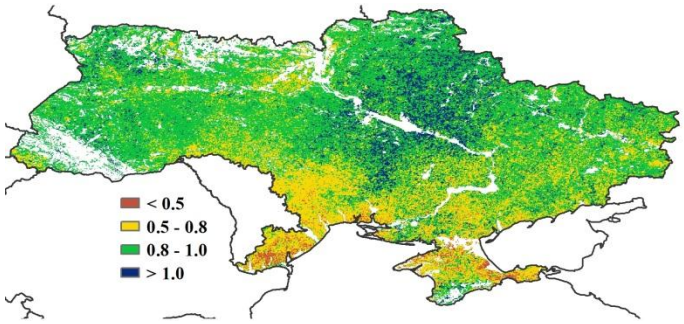
[UKR] Ukraine

The harvest of winter wheat in Ukraine started in July and is currently still underway; spring cereals and maize are still growing. Rainfall was well below average (-20%), while radiation slight increased (+1.0%). As illustrated in the section on the Central Europe to Western Russia MPZ (section 2.7), the decrease in potential biomass production potential (as described by BIOMSS) is large in the west of the country (-20%), while the east had favorable conditions with at least average BIOMSS; At the national level, a BIOMSS decrease of 15% is expected. According to the NDVI profiles, crop condition in Ukraine is close to the reference five-year average with a maximum VCI index of 0.86. According to the spatial NDVI patterns and compared to the last five years, central and eastern areas underwent favorable conditions in June (including Poltavs'ka, Chernihivs'ka, Sums'ka, and Kharkivs'ka), which is confirmed in the maximum VCI map. The many pixels with values >1.0 in the VCI map indicate exceptionally good crops in those areas. Altogether, the situation of both winter and summer crops has recovered from the poor conditions before; the current expectation is that crop production will be close to but below average.

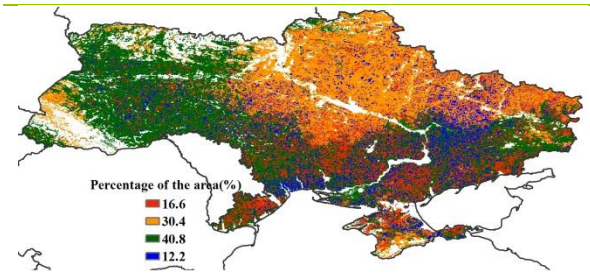
Figure 3.30. Ukraine crop condition, April-July 2015



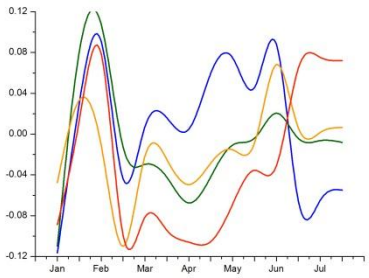
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles

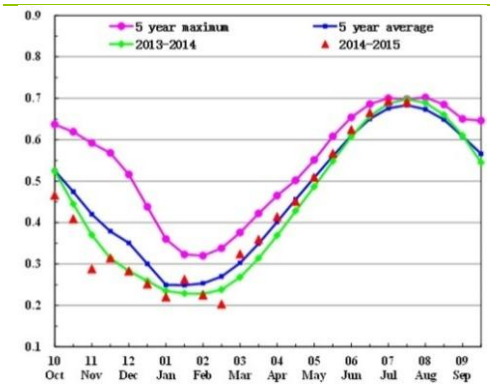
[USA] United States

In general, CropWatch indicators indicate that crop condition was above average in the United States over the monitoring period, which covers the heading and harvesting season of winter crops and seeding and heading season of summer crops. Overall, the rainfall indicator (RAIN) shows a 33% departure above average, with average temperature (TEMP, +0.2°C) and a 4% decrease in radiation (RADPAR).

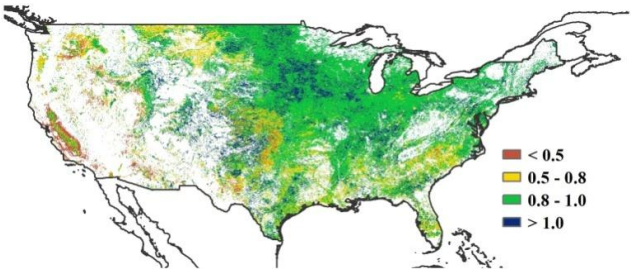
Excessive rainfall was recorded in the main winter wheat states, including Oklahoma (+126%), Texas (+101%), and Kansas (+36%). U.S. media reported strong rain causing record-breaking floods in May in Oklahoma and Texas, especially in Dallas-Fort Worth in Texas. Temperature was close to but below average in Oklahoma (-0.5°C), Texas (-0.4°C), and Kansas (-0.2°C). RADPAR was far below average in Texas (-8%), Oklahoma (-8%), and Kansas (-7%). Some winter crops were damaged by floods, but abundant rainfall also provided enough soil water for crop growth. As a result, the BIOMSS indicator shows a significant positive departure in Texas (+74%), Oklahoma (+69%), and Kansas (+31%) in general, but low values of VCIx in northern Texas and in Oklahoma, indicating the negative influence of excess water. As mentioned in the description of the North American MPZ (section 2.3), maize and soybeans received abundant rainfall, including in Iowa (RAIN, +15%), Illinois (+59%), Nebraska (+67%), Indiana (+33%), Ohio (+7%), and Minnesota (+1%). This is confirmed by record-breaking VCIx values (>1.0) in major maize and soybean producing areas. If favorable weather continues into the next monitoring period, good production of maize and soybeans can be expected. In Montana and North Dakota, rainfall was below or close to average (-6% and 0%, respectively). A negative NDVI departure after mid-May in the main barley producing states indicates a below average output for this crop. As mentioned in the previous bulletin, severe drought affected western states. This continued in this monitoring period in Washington (RAIN, -50%), Oregon (-24%), Montana (-6%), and the West Coast (-28%). Groundwater depletion in this region is a serious long-term risk.

Overall, the biomass accumulation potential (BIOMSS) shows a 19% positive departure compared to the recent five-year average; CALF increased by 1%; and VCIx was 0.88. The NDVI development profile showed above average crop condition, at the same level as same as last year, indicating a similar output can be expected. Table B.4 in Annex B presents the estimated production of maize, rice, wheat, and soybean in the United States in 2015.

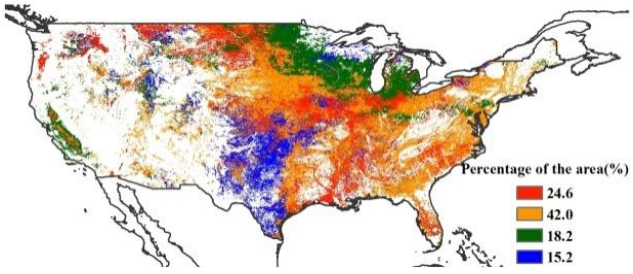
Figure 3.31. United States crop condition, April-July 2015



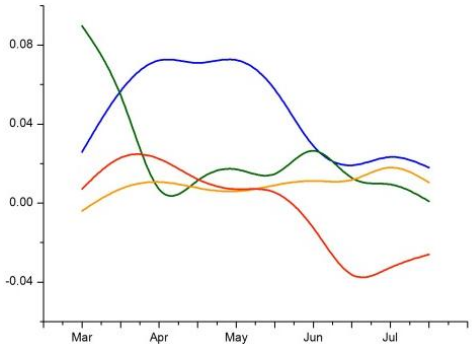
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



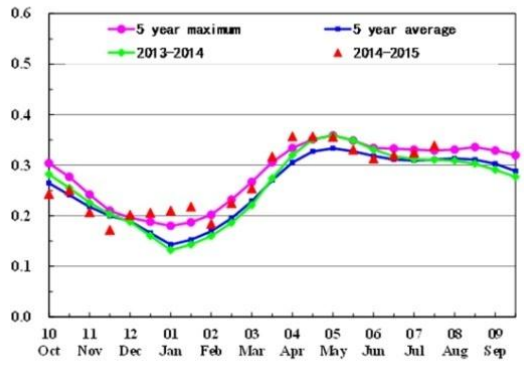
(d) NDVI profiles

[UZB] Uzbekistan

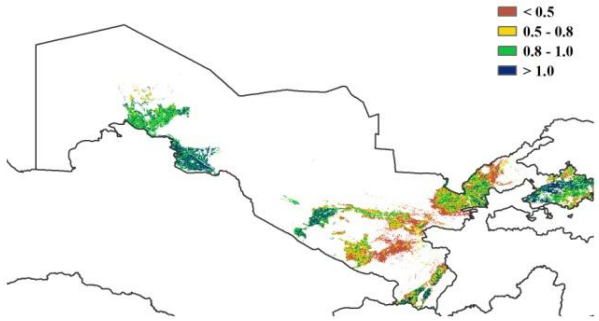
The reporting period covers the growing and harvesting stage of winter cereals, along with the sowing and growing stages of coarse grains and maize in Uzbekistan. The crop condition was generally favorable. The country as a whole showed an increase of RAIN, TEMP, and RADPAR (respectively+12%, +0.9°C, and +2%), and their combined effect was led to increase in BIOMSS of the order of 28% over the previous five-year average.

The national NDVI development graph shows that crop condition in early April was above the maximum of the past five years, but later deteriorated (in early June, it was below the average of past five years), and then gradually improved again up to a value above the maximum of the past five years. A closer look at the indicators shows that maximum VCI was below 0.5 in central and northern areas (Navoiy, Kagan, Jizzakh, Samarkand, Qarshi, Shakhriabz, Denow, Guliston, and Tashkent). NDVI profiles and spatial NDVI patterns show that in early June crops in most areas were in poor condition, except for the west and east (including the cotton growing areas of Karakalpakstan and Namangan, Andijon, and Quqon). The observation may be due to low rainfall and high temperature in this period. Generally rangeland and crop condition were satisfactory from April to July.

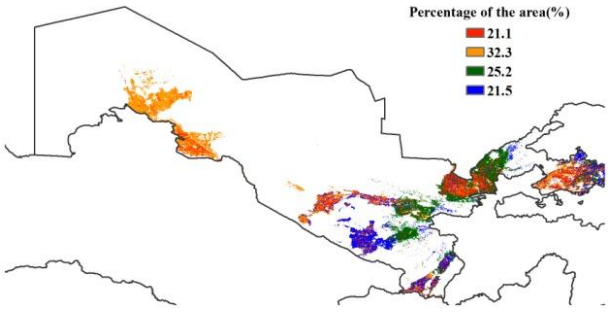
Figure 3.32. Uzbekistan crop condition, April-July 2015



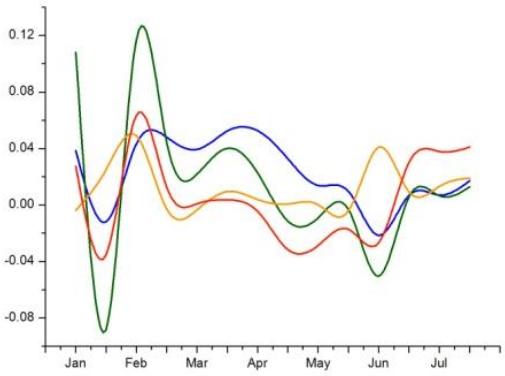
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

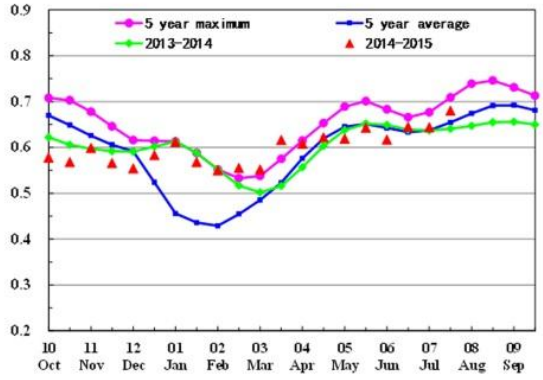


(d) NDVI profiles

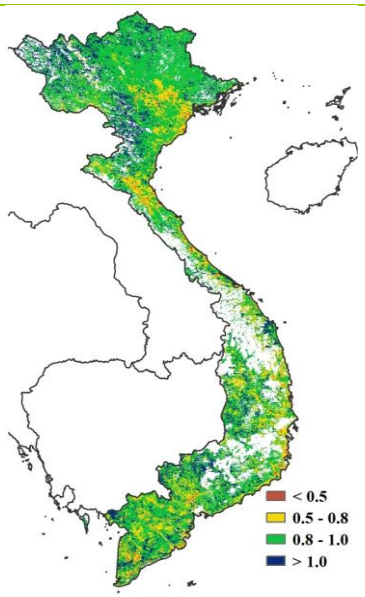
[VNM] Vietnam

The period from April to July 2015 mainly covers the harvesting period of winter/spring rice and also the sowing of the 10th month or North rice in Vietnam. Crop condition in April was slightly better than the average of the previous five years, then reverted to close to average or even below average in July, before returning to above average again at the end of the month. This is also confirmed by the profiles of NDVI: All five profiles show above average conditions from July on forward. More than 85% of the crops are in favorable condition. Only about 10% of the crops show fair conditions, including those in the northeast provinces of Lang son, Bac Giang and Quang Ninh. The maximum VCI of the current period is 0.89, indicating acceptable overall conditions. Among the CropWatch agroclimatic and agronomic indicators, both RAIN (-2%) and TEMP (+1°C) were about average. In contrast, RADPAR (+4%) was slightly above average. Since the rainfall and temperature were favorable, the -10% decrease in biomass accumulation (BIOMSS) and the sharp drop of NDVI in early July may be attributed to the Typhoon Kujira (see also section 5.2). Overall crop condition in the country is satisfactory.

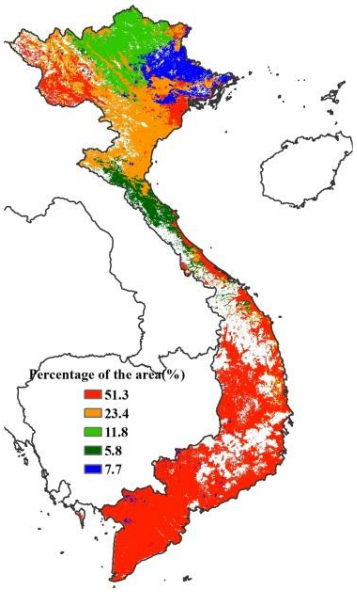
Figure 3.33. Vietnam crop condition, April-July 2015



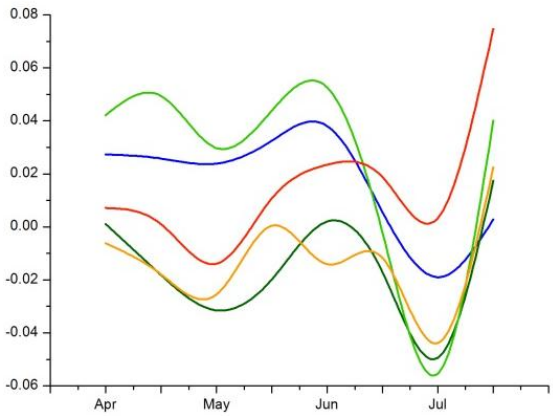
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA

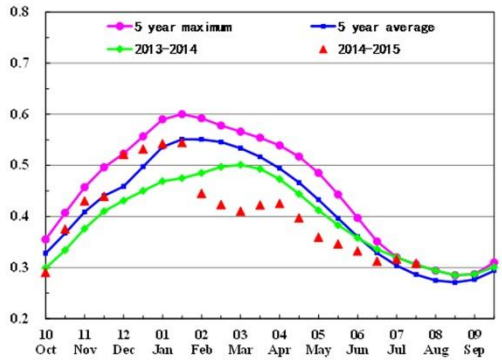


(d) NDVI profiles

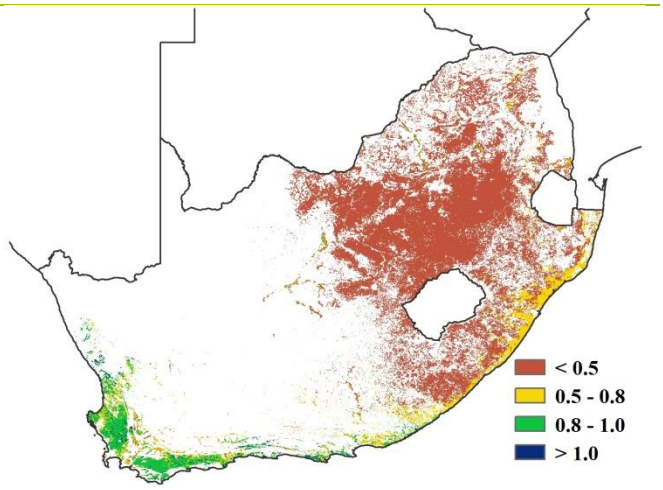
[ZAF] South Africa

The monitoring period covers the sowing of winter wheat and the harvesting of maize. Maize, which is widely cultivated in the country's northwest and in Mpumalanga, Free state, and KwaZulu-Natal, is the most important crop for South Africa. Crop condition is well below the average of the recent five years, which indicates a reduced production that is confirmed by the very low maximum VCI of 0.35. The CropWatch agroclimatic indicators all point to a decrease in production. Rainfall was well below average (RAIN, -50%), while temperature (TEMP) was slightly above average (+0.8°C) and radiation (RADPAR) mostly unchanged; all this led to a 42% reduction in biomass production potential compared to the average. Cropped arable land was 10 percentage points below the average of the last five years. As is shown in the NDVI clusters, more than 70% of the agricultural region does not reach average conditions.

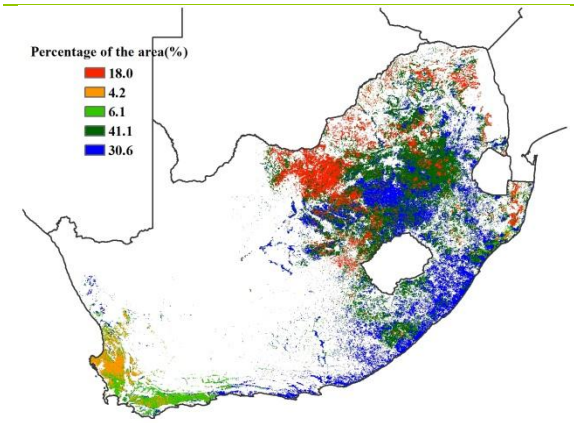
Figure 3.34. South Africa crop condition, April-July 2015



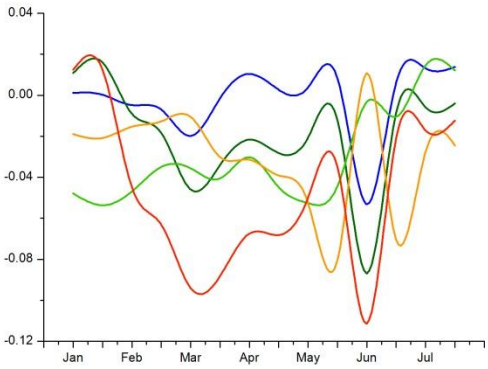
(a) Crop condition development graph based on NDVI



(b) Maximum VCI



(c) Spatial NDVI patterns compared to 5YA



(d) NDVI profiles